DEC 30 1919

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EDITED BY

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I appreciate more deeply than I can express the great honour you have done me by inviting me to address you as a delegate from Britain. The admiration I have for the surgery of America, and for the countless personal friends who practise it, would alone make this voyage memorable to me; but, in addition to this, I can never forget the debt under which we are placed for help given to us at a very critical period at home.

The loan of twenty-five keen and experienced young surgeons placed at our disposal for the duration of the war, equipped and paid for by the American Government, has placed an obligation upon us very difficult to repay, and which I can only express in terms of affectionate gratitude. How that band of twenty-five rapidly swelled to close upon a hundred is known to many of you; but we on the other side, who lived amongst them, inspired by their energy, their sense of responsibility, their loyalty and devotion to duty, can alone speak of the sweet memories they have left behind. They filled a gap which seriously threatened to sterilize our reconstructive efforts, and they filled it with distinction and success.

When your nation entered upon the war most of our more tragic problems were being overcome. Sepsis and gas gangrene had largely lost their terrors. Shock was being adequately dealt with; wounded men at advanced units were promptly and effectively handled; continuity of treatment from regimental aid post to the base was being secured, and standardization of methods appreciated and practised. Team work was in full swing, while the segregation of special cases under expert men had already made advance.

But in the early days of the war, when the wounded passed into our country in countless numbers, our hospitals soon became full to overflowing. The same conditions were experienced in France. There was nothing for it but to evacuate the less serious cases to make room for others, with the result that our towns and even villages began to feel the burden of the cripple. If the men were not discharged they were found segregated in command dépôts, and these dépôts from their nature were not equipped with the personnel which could effectively deal with them.

A visit through these large camps very early proved to us that it was necessary to have certain hospitals governed by less stringent rules, where every accommodation should be provided for the type of case which required a sufficiently protracted stay to prevent deformity and to restore function. At Sir Alfred Keogh's request an experiment was first made in Liverpool, where 250 beds were placed at our disposal. Later, in Liverpool this number grew to 1,500, and fresh centres were started in Great Britain and Ireland, until the number reached over 25,000. Difficult as it was to find beds, it was even more difficult to find surgeons to superintend them, for all medical men under 45 were commandeered for foreign service, and it was the young men who were badly needed—men of sound surgical training, with minds sufficiently open and flexible to grasp and solve new problems.

Visits to general hospitals and command dépôts clearly proved that without segregation and continuity of treatment we were in danger of scrapping thousands of cases who possessed the potentialities of recovery; and these were not merely the serious cases, but also those suffering from lesser injuries upon the recovery of which we depended in order to replenish our fighting forces.

The cases we met with in these tours of inspection were malunited and ununited fractures—especially femurs. Stiff and ankylosed joints; flail joints; the after-effects of injuries to peripheral nerves and deformities due to the contraction of scars. Many of these conditions were recoverable, and most of them might have been prevented.

These men, when admitted into our centres, had usually been to several hospitals. They were generally discontented, and by no means willing to undergo any further manipulative or operative attack. They did not necessarily come from our small auxiliary hospitals, but often from those institutions where, in normal times, we would find the most skilful and eminent surgeons.

Our first effort consisted in endeavouring to improve the mental outlook of the men and in making every effort to humanize the hospital. Persuasion and explanation took the place of command and penalty, and our various centres with their annexes became hives of industrious and contented men. In a very short time they were prepared to submit to anything we wished.

The segregation into large centres of so widely differing groups of cases involved great responsibility—more especially the nerve cases. Frequently I had been told by neurologists who operated in various hospitals that they were quite unable to follow their cases, there was no possibility of retaining them in the war hospitals, where convoys continually arrived, for much longer than it required to heal the wound. They were evacuated and found again in various small country hospitals, or even in command dépôts, sometimes under conditions anything but desirable. They had to be admitted to our centres, and it was therefore necessary to secure the service of eminent neurologists to help in the treatment. As most of the nerve injuries were accompanied by other lesions they were very admirably placed for general supervision.

It may be of interest to mention briefly certain lessons we have learnt in the treatment of these peripheral nerve injuries. The complications were such that we were often obliged to wait until they were overcome before any operation could be undertaken. Suppurating wounds, involving bones, muscles and tendons, and stiffness of joints, all delayed an attack upon the nerve. Muscles had to be freed and developed, and osteomyelitis drastically extirpated in order to render the muscles receptive to impulse. The sooner these complications were overcome or improved the better the chance for the nerve, not because delay in operating upon the nerve lessened the chance of regeneration, but because a chronic myositis very seriously impaired the power of the muscle to react when recovery of the nerve path was re-established.

Experience taught us that it was better to explore earlier and more frequently than we did at the beginning of the war.

It is found that if a nerve is simply concussed or compressed, and has undergone Wallerian degeneration, it will early show signs of recovery. In cases which do not spontaneously recover in a month or two, it is usually a mistaketo await regeneration of the nerve, and an exploratory operation should be undertaken. Inspection of the exposed nerve at the time of operation and its faradic excitability should be regarded as a part of diagnosis. It is essential in such cases that the surgeon should be experienced in nerve surgery, and be prepared to close the wound without interfering with the nerve if it has an intact sheath, and gives a faradic response when tested with a weak current. It is probable that no interval between wound and operation is too long to preclude possible recovery after suture. The state of the muscles, tendons, and joints is the important factor.

It has been found in practice that end-to-end suture can be attained in the great majority of cases by posturing the joints and by transposing nerves. An inch and a half can be gained by transposing the musculo-spiral to the inner side of the humerus, and several inches by transposing the ulnar to the front of the elbow. In the rare instances where the nerve could not be brought together we found this could be accomplished by a two-stage operation. Silk was tied around the bulbs, and they were brought together as nearly as possible, extra length being secured by posturing the limb. The wound was then closed and gradual traction applied to the nerve through the limb for some weeks. At the second operation it was found that the ends could usually be brought together. It is needless to emphasize the importance of approaching the nerve through normal tissue above and below the lesion were it not that even yet surgeons may be found making the exploration through scar tissue. Nothing is to be gained from surrounding the suture line with vein or Cargile membrane or fat introduced from without. If the nerve has to be protected from scar tissue, a living muscular flap is indicated, but, whenever possible, the scar

tissue should be freely excised. The Medical Research Committee, whose report is not yet published, has carefully investigated a large number of cases operated upon. In the case of nerve grafting they have not met with one case of complete recovery and but very few partial recoveries. Most cases have ended in failure. Bridging by catgut, vein, alcoholized nerve, and other foreign material has consistently failed. The turning down of flaps of nerve, and nerve crossing or anastomosis—that is, implanting the distal end of the divided nerve into a healthy one—invariably fails. The conclusion come to is that end-to-end suture by a one, or, if necessary, a two stage operation, is the method to be adopted in every case.

In cases of irreparable damage to the musculo-spiral or posterior interosseous, tendon transplantation properly performed has proved an unqualified success. It must be associated with a good technique, and be followed by careful re-education. The operation I suggested in pre-war days with certain modifications I still recommend, but I advocate a more frequent use of the pronator radii teres. The flexor carpi radialis and the flexor carpi ulnaris can be transplanted into the paralysed extensors of the thumb and fingers, and the pronator radii teres may be affixed to the radial extensors. In transplanting tendons it is important to pay careful attention to the correct tension, and the hand and fingers should be kept well dorsiflexed when the attachments are being made, and the transplanted tendon must run a straight course from its origin to its new insertion. Attention to these points will make the difference between success and failure. If the operation is a real success, the fingers and thumb can be easily fully extended. Tendon transplantation with the object of merely dorsiflexing the wrist should be discouraged, and tendon fixation with the object of permanently fixing the wrist in dorsiflexion should be reserved for those cases where transplantation has been a failure and where the extensor muscles and tendons have been destroyed.

Paralysis of the anterior crural is very rare, probably because the femoral vessels are usually destroyed by the missile. We have here a choice of hamstrings to attach to the patella. Strangely enough I have only met with one case, and in this instance the recovery was sufficiently good to permit of climbing stairs with increasing power.

Tilanus of Holland some twenty years ago suggested an operation for flail feet in poliomyelitis which he termed tenodesis. He used paralysed tendons as ligaments in order to sling the foot at right angles. Gallie and others have worked on similar lines. This operation, with modifications, is helpful in drop-foot due to sciatic injury where suture is impossible. The peroneus longus is cut about three inches above the external malleolus, and the tendon is withdrawn through an incision above the base of the fifth metatarsal. The loose tendon is then passed through the annular ligament and through a tunnel bored through the tibia. The tibialis anticus is also cut and passed through the same tunnel. The tibialis is passed from within outwards, the peroneus from without inwards. The foot is dorsiflexed to a shade beyond the right angle, and the tendon ligaments are drawn tight and attached to each other. The peroneus brevis is cut and attached to the fibula. The result of the operation is very satisfactory—much more so than in the case of children, where problems of growth have to be considered.

The prognosis as regards functional utility after nerve suture depends very largely upon which particular nerve has been injured. Thus the musculo-spiral usually makes a good recovery, whilst the ulnar, as regards the intrinsic muscles of the hand, does badly. Another factor of importance in prognosis is the occupation of the patient. A man with an ulnar nerve lesion will usually recover both sensation and muscular control quite well enough for most trades, but he will not recover control of the finer movements of the hand—such as are needed for piano playing.

After the musculo-spiral, in order of good recoveries, we must place the sciatic. The results of suture here are surprisingly good. A large number of our cases were examined two or three years after suture. Some of these men could jump, climb ladders, and run, and many have returned to their pre-war employment.

The brachial plexus often makes a good recovery, especially the upper part. Plexus lesions should be watched for a long time, six to nine months or more, and not operated on for exploratory purposes as are the nerves themselves, because they frequently make excellent progress, and a generalized paresis may later be limited to one cord, or nerve.

Median injuries do fairly well, the thumb intrinsics even recovering in some cases, whilst it is usual for the wrist flexors and considerable sensation to recover. Sensation, however, is usually lost, or very slowly or rarely recovered from, over the terminal phalanx of the index fingers.

The ulnar recoveries are good as regards wrist and finger flexors, and even its sensory disturbance clears up well. As has been stated, good recovery of the interossei is very rare. They may and do recover their faradic excitability more often than voluntary power.

Combined lesions of the median and ulnar, particularly if complicated by ligation of the artery, do very badly. There is usually the stiff, rigid, board-like hand with joint changes to still further hinder the chance of good function. This is, indeed, the important obstacle.

The after-treatment of cases of peripheral nerve injury has not undergone much change. The relaxation of muscles is essential, and it is also necessary that the relaxed position of the nerve should not be too early dispensed with, otherwise the recently regenerated axis cylinders will be ruptured. Interrupted galvanic stimulation, massage, heat and re-education are indispensable desiderata.

Dr. Lloyd Roberts, who is in charge of the neurological department at the Liverpool Special Military Surgical Centre, has demonstrated a phenomenon which he describes as "opposative electrical reaction." He points out that in certain conditions electrical stimulation of a muscle induces, instead of contraction of the muscle itself, contraction of the muscle or muscles whose action is exactly the reverse of that of the stimulated muscle. For example, stimulation of the extensor longus pollicis will induce contraction of the flexor longus pollicis. This result has, of course, been frequently seen, but was supposed to be due to the overflow of a strong current. Roberts points out that it can readily be proved that this is not the case from the fact that the contracting muscle is not adjacent to the stimulated muscle, and that the intervening muscles do not contract. Similarly, stimulation of the extensor indicis will induce contraction of the index tendon of the flexor sublimis. Such is the delicacy of the reaction that the other flexor tendons are not at all stimulated. This reaction is never obtained when the nerve supplying the stimulated muscle is normal, or severed, or slightly compressed, but only in conditions of severe compression.

When compression is progressively increasing it is often the last electrical sign to persist, and, conversely, when a sutured nerve is recovering, it is often the first reaction to be obtained. In the case of the posterior interosseous it probably always indicates compression of the musculo-spiral by callus.

A series of very interesting trick movements have to be carefully watched for when we test the amount of recovery following suture, or when we are making a diagnosis. Unless the surgeon is familiar with their occurrence he is very liable to be misled.

In complete paralysis of certain muscles and muscle groups the unaffected muscles acting in combination can replace the movements lost by paralysis in a very remarkable manner. For instance:

1. The opponens pollicis can be perfectly imitated by the ulnar adductors of the thumb in combination with the extensor ossis.
2. The extensor ossis may act as a good wrist flexor in cases of complete paralysis of all median and ulnar muscles.
3. The fingers may be closed in complete median and ulnar paralysis by extending the wrist when the inelastic paralysed flexor tendons acting as ligaments permit the fingers to mechanically flex.
4. The elbow may be flexed by the pronator radii teres in combined lesions of musculo-cutaneous and musculo-spiral nerves.
5. Flexion of the fingers may extend the wrist in lesions of the musculo-spiral, simulating the movement of the wrist extensors.

Although electrical stimulation will generally teach us to discriminate between the true and spurious movements, the observer must be on the alert or he will be quite easily deceived.

Sir Anthony Bowlby, to whose organization we owe so much for work in connexion with the subject, has already addressed us on *Fractures of the Femur* as he met with them in France. In the early days of the war these injuries supplied our centres with a large proportion of deformities. In 1917 I described gunshot injuries of the femur as "the tragedy of the war," not only by reason of the fatality by which they were attended, but also because of the deformity and shortening so often associated with them. This was due to the absence of effective team work at home and abroad, a want of standardization of splints, and of continuity of treatment from front to base, and of the segregation of these injuries in special hospitals under expert men. I have it on the authority of Sir Henry Gray, who collected statistics over one of the army areas in 1916, that the mortality from these fractures amounted to almost 80 per cent., a large proportion of deaths occurring on their way to, or at, the casualty clearing stations. In the year 1918 Sir Anthony Bowlby tells us that "the mortality in field ambulances and in casualty clearing stations was reduced to 20 per cent."

To what are we to ascribe this dramatic change? First and foremost to the recognition, too long delayed, of the value of the Thomas splint, and to its distribution to the regimental aid posts. We cannot give too much credit to Sir Henry Gray for the work he did in this connexion. In pre-war days a certain kind of homage was paid to the Thomas splint, but that was all. Its use was strictly limited, and in spite of its simplicity very few surgeons knew how to apply it, and in many of our teaching hospitals it was only known by name. In Liverpool we have long taught that fracture of the femur, simple or compound, treated by a Thomas splint, should, at the worst, not yield more than half an inch of shortening, and that if a surgeon desired it he could easily produce an appreciable lengthening. It has taken a great war to drive this truth deep home. The calliper splint, which has been in use for over forty years, was scarcely known. The standardization of the Thomas splint, the education of men in its use, its application on the field of battle, secured for the fracture immobilization and simplified transport, it minimized shock, and it prevented the perforation of vessels by securing the alignment of the broken ends. Its use had to be understood from the field to the base hospital, for continuity of treatment was imperative. At the base hospital it might be necessary in more leisurely fashion to apply modifications in response to special requirements. A subjugation of sepsis and gas gangrene also played an important part in these improved statistics, with all those accessories for the prevention and lessening of shock, such as the heated ambulance and the hot chambers. In addition to this the mobile expert teams which were rushed from place to place allowed of more skilled and frequent operative treatment. Then came the equipping of special femur hospitals, where some of the best and most inspiring war work was done. In this connexion I feel I must refer to the work of Major Sinclair, who displayed remarkable ingenuity, and whose cases, even in the early days of the war, arrived in England with barely any shortening and in excellent alignment. To him and to Colonel Pearson and Colonel Watkin Williams we are much indebted for excellent pioneer work. Pearson, who later took charge of one of our large femur hospitals, using the modified Thomas splint to permit of knee flexion, obtained traction by the introduction of callipers which gripped but did not penetrate the femur, and used suspension of the Thomas ring and elevation of the femur. In addition, he designed a special bed which rendered dressing easy and painless.

In 300 cases of compound fracture treated in England in one of the special military surgical centres where this method of extension was employed, the average shortening was half an inch. There can be no doubt that the use of the safety ice-tong calliper in the hands of experienced surgeons has been of very great service. The arrangement should always be affixed to it to prevent it from entering the bone. This is especially important if evacuation takes place during treatment. Many cases arrived in England where the knee and ankle-joint had been infected by ice-tong callipers which were introduced into cancellous tissue and worked their way downwards. It must be remembered, however, that fracture of the femur can be effectively treated by the Thomas splint with ordinary extensions. The pressure of the ring can be modified by tying the end of the splint to the end of the bed, which is elevated. Of 97 cases which were at the Liverpool Special Military Surgical Centre at one time, the average shortening was less than five-eighths of an inch, and the skilled nursing secured for the patient freedom from pressure sores and a comfortable convalescence. The extension callipers, combined with a free knee-joint, undoubtedly minimize a frequently obstinate stiffness, but they should never be used for transport purposes.

The Thomas, with plaster or glue extension, is the ideal transport splint, and fractures of the femur, such as we meet with in civil life, can be most adequately dealt with by this apparatus. The stiffness of the knee which follows retention is of a very tractable kind, and is usually quite overcome after two weeks' massage and exercise. As a transport splint in civil life it is ideal. I remember on several occasions when I assisted H. O. Thomas in the case of workmen brought to him with fractured thigh. A splint was applied in a few minutes without an anaesthetic and the patient sent home in a four-wheeled cab, sometimes a considerable distance.

The lessons that we civilian surgeons should learn from all this are clear. If such results are obtained by simple means in such compound fractures as have occurred in war, why should we have recourse to more complicated methods? Why should the student be taught that fractures of the femur can only be adequately dealt with by one of the various forms of internal splinting? Why should we spend so much ingenuity and time in devising operative novelties when it is so much easier and useful to learn the simple way? In the hands of the expert and cleanly surgeon catastrophes may generally be avoided, but what of the rest? In every village and hamlet the humblest of us may be called to treat a broken thigh, and the humblest of us should know before he leaves his studies how this can be done with safety and suecess.

Many years ago I pointed out that the textbook deceived us as to the time it takes for bone to consolidate sufficiently to bear body weight. This delay in firming is still more pronounced in war wounds. After several months of apparent union angulation may occur unless the bone is protected. The use of the calliper splint is the best protection. This splint is a Thomas splint running into the heel of the boot, and it should be used in the later stages of treatment of all fractured femurs. The removal of the splint should be gradual, and the experiment should be made under careful observation.

Time will only allow me to touch upon a few of the many interesting surgical problems that we have worked amongst. We have found loss of substance the most common cause of non-union. This is more especially the case in the humerus and the femur. When there is another bone to maintain the length, non-union is less common.

Esquilectomy, though at times inevitable, accounts for many of these gaps which do not fill up. It is quite impossible at the time of injury to say that a loose piece of bone has no blood supply. In the later stages of treatment we have been often impressed by the osteogenetic power of apparently loose pieces of bone which have lived in suppurative areas. This has led us to advise the maintenance of the length of limb rather than to approximate the bone ends, more especially in the case of the femur. Gaps which only exhibit a faint shadow here and there may ultimately be filled up with bone, and it is well to give the case its chance. Ununited fractures of the femur with loss of bone should be kept in calliper splints and allowed to walk with rubber tubes above and below the fracture. This, apart from maintaining the patient's health, increases local congestion and osteogenesis. Many ununited fractures of the humerus have been caused by prolonged and too powerful extension, and sometimes by the injudicious use of the Thomas arm splint. The Thomas arm splint is essentially a transport splint, and its prolonged use may give rise not only to non-union but also to ankylosed elbow, wrist and fingers. Compound fracture of the humerus is best treated with the arm abducted. Ununited fracture of the humerus is most surely united by the step cut operation, and the steps should be long. Shortening of the arm is of minor importance.

Bone grafting proved of no value in filling gaps in the shaft of the femur or the humerus. Real adequate development rarely if ever was secured even if the graft lived. Several grafts which have been used to make up the deficiency in flail joints have fractured, and in the few that have survived for over a year there is but little promise of adequate stability. The best results from bone grafting are in association with the radius and ulna, and I think that the method described by Hey Groves is best whereby the ends of the bone are freshened, their medullary cavity drilled, and a piece of tibia like a cricket bail is removed and the two sharpened ends are passed into the medulla. This technique is suited to non-union in association with a gap. If bone grafting is decided upon it should be done in two stages—the first being the removal of scar tissue. This allows of better blood supply and lessens the liability of sepsis. In malunited fractures we never operate in the presence of a sinus nor for some months after it has closed. We hasten the healing by free exsection of sinus, scar, and bone. If the alignment of the bone is good and the shortening does not exceed one and a half inches we do not operate. If the alignment is good but there is marked rotation of the limb, we perform an osteotomy some distance from the fracture. In malunion we rarely evacuate the ends of the bone through the wound, but prefer to follow the attached surfaces with a chisel and trust to extension without internal splinting. Rough manipulation stirs up all hostile factors. We should be merely gently efficient. Although we know fractures will unite in the presence of sepsis, the sooner we eradicate sepsis the firmer and better will union become. In recent and in ancient fractures all joints should be kept mobile, and the muscles should be regularly stimulated by electrotherapy.

The restoration of function in joints is too vast a subject to dwell upon. Suffice it to say that forcible movements are rarely indicated. Certain symptoms following manipulation and passive movements indicating injurious strain may be formulated:

If pain occurs after manipulation and is of short duration, movements may be continued.

If pain persists for lengthy periods after manipulation, *rest* is indicated.

If the increased range of movement is maintained after manipulation, further movements can be safely prescribed.

If in spite of movements, even in the absence of great pain, the range is continually diminishing, rest is indicated.

The duration of pain when tissues are relaxed, rather than its intensity, should be our clinical guide.

In overcoming adhesions and in subsequent manipulations the joint should be put through its various movements only once. The oft-repeated pump-handle movements applied at each sitting are never useful, and often start inflammatory symptoms. Voluntary movements can safely be allowed, and should be encouraged. They are not followed by obstructive reaction.

A more systematic and thorough education is required in the treatment of fractures. This can only be effected either by setting apart wards for fractures under the care of men who devote real interest to the subject, or by retaining certain institutions solely for the treatment of these cases. Education is sure to be imperfect if the treatment of fractures is to remain in the hands of surgeons who take no interest. We should regard every fracture as the potential cause of disability. In England, and I should imagine to a certain extent here, the demand for beds is so pressing in our civil hospitals that a junior officer will gain no favour if fractures are admitted in numbers or are retained for long. This, after all, is only a repetition of the story of early evacuation in time of war. It has no justification in time of peace. If general hospitals are not prepared to segregate cases of fracture, properly superintend them, and to treat them until evacuation is safe, they are far better without them, from the point of view of the surgeon and the student, and of the unfortunate victim.

Your nation taught us a valuable lesson when a committee was appointed to standardize splints, and all the surgeons were taught to master their construction and use. This again should be of value to us in civil life. If the simplest and best splints were standardized by a committee of experts, and their application thoroughly taught to every student it would clarify a complex problem. The student should be taught not to be out and out adherents to an operative, a fixation, or a mobilizing school. He should be taught to cultivate a sense of proportion, and above all, he should be taught how to make a diagnosis without first consulting an *x*-ray picture.

War has taught us the importance of insisting that before a man becomes a specialist he should have a sound working knowledge of general surgery. Nothing is so fatal to progress in any special branch than when, from defect of education, a surgeon is obliged to take a microscopic rather than a telescopic view of a problem. When a firm surgical foundation is acquired he can deflect his energies with great advantage to special fields. One of the inevitable misfortunes of the war has been that able young surgeons with but little pre-war experience have graduated as excellent operators. They should, on their return, supplement their knowledge of the use of the knife by a careful study of conservative methods such as they will find in our reconstructive hospitals. The scalpel is not the surgeon's greatest asset—it may be his greatest curse. He requires a steady head even more than a steady hand.

War has brought to the front the young surgeon. He has left an indelible impression upon the evolution of surgery during a grave national crisis. We must give him more liberty, and make more use of him than we have been accustomed to in the past. His flexible mind has great potentialities. This can only be developed by giving him a fuller responsibility. It is a tragedy to see men between thirty and forty gathering the crumbs that fall from the table of Dives. The experience of age is after all only the product of opportunity. Let the young glean all that is worth gleaning from their seniors, but let us on our part offer the hand of friendship to all who strive to improve upon our methods, and value their loyalty all the more if they maintain a critical spirit.

War has done us one supreme service. It has cemented the two nations we love into a sacred bond of brotherhood. May it last in ever-increasing strength throughout the ages.

SOME REMARKS ON MEDICAL EDUCATION.*

BY

SIR GEORGE MAKINS, G.C.M.G.,

PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Of the many questions needing an early solution at this time of change and reconstruction that of medical education is far from the least important. We may do well, then, to consider what changes are possible in dealing with the preliminary and intermediate subjects, and further, whether the teaching of the final subjects as at present carried on is adapted to the production both of the ordinary practitioner and of those whose duty it is to further the advance of the science of medicine and to serve as pioneers and teachers of others.

The spirit of this address is in no sense to raise any question as to the necessity of employing a scientific method in the teaching of medicine, but its object is to lay stress upon the fact that the "doctor" in the ordinary sense of the term is of necessity a practitioner of "*the art of medicine*." He is in a position to further the advance of the science by intelligent observation and logical reasoning, but the nature of his duties and the calls upon his time render it unnecessary to deal with him as a student of pure science, and hence the character of his education should correspond with the nature of the duties he will be called upon to perform.

The development of our present system has been a gradual process, of which one of the most important features—that of fitting a man for the actual practice of his profession—has been removed from the preliminary to the post-graduate stage. Under the ancient system of apprenticeship a boy acquired a knowledge of the essential qualities for successful practice, both from the

* An address delivered to the Medical Society of Manchester, October 29th, 1919.

humanitarian and the economic points of view, before he was compelled to definitely make a choice of his life's work. Some experience of his aptitude for the calling of a doctor was gained not only by himself, but also by others well qualified to judge of his character, disposition, and mental capacity. These advantages—of capital importance to the production of the medical craftsman—have had to be sacrificed to meet the requirements of the ever-increasing share taken by science in the advance of medicine.

The casual knowledge acquired during the period of apprenticeship, supplemented by a course of "walking the hospitals," became gradually supplanted by the "medical school" and a more strictly defined curriculum, to which from time to time constant additions have been made, with again a curious fluctuation in the importance assigned to the earlier and later subjects included.

Fifty years ago anatomy and chemistry provided the chief sources of scientific instruction, supplemented by limited courses of physiology, botany, and perhaps comparative anatomy. The science of physiology was at that time in its infancy, and the essential facts regarding the functions of the various organs and structures of the body required but a small exercise of the mental powers of the student. The same remark may be applied to pathology as a constituent part of the curriculum.

With the growth of the latter two sciences an ever-increasing amount of time was required for the acquisition of the modicum of knowledge to be acquired by the student, until they, together with the other early subjects, began to engross the greater part of the entire medical curriculum. Meanwhile advance in the whole field of medicine, and especially the development of the so-called "specialities," rendered the time available for the acquisition of actual professional knowledge hopelessly inadequate, and as a consequence the curriculum had to be lengthened, and the share to be devoted to the study of the preliminary and intermediate subjects strictly limited. This expedient has since been rendered inoperative by the constant addition of subjects of prime importance, such as the branches of pathology and pharmacology.

This is the position in which we find ourselves to-day—the student burdened with a task wellnigh impossible, worried by the frequency and multiform character of examinations, and yet perhaps less broadly acquainted with the general principles of medicine than he was after passing through a much simpler course.

It may be well here to pause for a moment to consider what place medicine holds amongst the sciences, and how far it is necessary that the practising medical man should be held to be a follower of medical science rather than a practitioner of the art. A suitable preface to this consideration may be found in a dictum of Professor Huxley, laid down in an address to the medical profession, "On the Connexion of the Biological Sciences with Medicine" (*Proceedings* of the Seventh International Medical Congress, 1881, vol. i, p. 91):

> It is so difficult to think of medicine otherwise than as something which is necessarily connected with curative treatment that we are apt to forget that there must be, and is, such a thing as a pure science of medicine—a pathology—which has no more necessary subservience to practical ends than has zoology or botany.

This is an undeniable statement, and I think it behoves all concerned in the education of the medical practitioner to bear it in mind in the decision how far that education should be directed towards the development of the science of medicine, and how far towards the production of the efficient practitioner of the art.

The science and the art of medicine are alike founded on the exact observation of the conditions of health and disease; both owe much of their development to the use of the experimental method, by which observations are confirmed, additional facts are obtained, and new fields of inquiry are opened up. In either the science or the art advance depends upon logical reasoning and upon conclusions drawn from the facts observed. The methods employed differ little from each other in character, but while the worker in pure science seeks for the extension of knowledge as to the causation and the process of disease, the practitioner of the art mainly strives to perfect his knowledge of such phenomena of disease and the means and methods of combating it as have already become familiar. Hence the objects of the art of medicine are more limited in scope and confined to a comparatively narrow field, while those of the science are illimitable and pursued independently of any utilitarian aim. Nevertheless, the science of medicine owes its birth to the observations of the practitioners of the art, and even under the altered conditions which obtain to-day its followers can only work satisfactorily for the advance of knowledge by maintaining an intimate collaboration with the practitioner of the art.

A survey of these considerations should exert a definite influence upon the determination of the nature of the course of education best suited to the development of the doctor upon whose efficiency the happiness and health of the nation so largely depends. It is clear that for the great bulk of the profession a path must be found by which advances in science are utilized for the perfection of the art of medicine, but it cannot be possible to elevate every medical man to the position of an apostle of pure science.

All men are not endowed with a truly scientific spirit; the power of evolving great principles is reserved to the few, and even the correct appreciation and application of those which have been laid down is not a faculty universally enjoyed. Again, the power of reasoning, the possession of initiative and invention, and the facility of developing technical skill, are qualities very unevenly distributed amongst the class of man who adopts medicine as his profession. The reasons which lead to his choice are by no means always governed by the degree of aptitude he possesses for the calling he decides to follow. To some the science of medicine appeals; some adopt medicine from the lofty motive of desiring to benefit mankind; some boys are born to succeed to a family practice; some become students of medicine because the choice coincides with that of a friend; in some business capacity is *nil*; in others it is the mainspring of the future career and dominates all other feelings or aspirations. Lastly, in not a few instances the initial choice has never been made the subject of serious thought or consideration.

The student of pure science in the past chose a career which for many was equivalent to a vow of poverty and chastity, from single-minded love of the subject and an abnegation of all thought of personal gain or advancement. Matters have perhaps changed somewhat of late in this direction, but a large proportion of the newer recruits are to departments of technical science of a purely utilitarian nature, the practice of which is in no sense to be distinguished from that of an art.

Medicine therefore is not a calling which can be held to stand alone as to the difficulty in determining what relative share science and art must take in the moulding of its followers, and it is evident that, except in the initial stage, one and the same course of study can hardly be calculated to produce the desired end—that on the one hand of producing a student of science, or on the other a practical medical man. Hence it appears evident that in the education of the doctor medicine itself must be allowed to take a more prominent part as an exercise of scientific thought and method, and the attempt to develop a scientific turn of mind by administering smatterings of the ancillary sciences should be abandoned.

Modern tendency has been in the direction of relegating the study of the preliminary scientific subjects, chemistry, physics, and elementary biology, to the secondary schools, and to define the extent of the work to be done by a syllabus which limits the scope of knowledge which will be required at the examination. Can it be maintained that such a method of teaching is that most suitable for the inculcation of broad lines of scientific principle, or does it not rather tend to the initiation of a habit of accumulating a number of details learned more or less by rote for the purpose of passing an examination?

A further objectionable feature in the existing curriculum lies in the hurried acquisition of a minimum of knowledge in short successive stages, at the end of each of which the medical student starts afresh with new teachers and, to him, a new subject, which he is apt to regard as quite unconnected with the subjects he has left behind him. Even in a university, the limited scope of the knowledge demanded from the student of medicine, and the short period of time allowed for its acquisition, places him at a disadvantage when classed with others who are making a serious study of subjects such as chemistry, physics, and biology; hence courses directly adapted to meet his modest needs are commonly arranged for his convenience.

Yet no one can deny the necessity of his acquaintance with the principles and many of the facts of chemistry, physics, and biology, as a part of his training as a medical man.

Two difficulties therefore have to be met: one the short period of time which can be allotted to the subjects, the other the want of co-ordination and continuity in the instruction given, consequent on the present method. In both particulars a retrograde step appears to have been made in the sharp separation of the so-called preliminary and intermediate subjects, and in making the former rather antecedent to than ancillary to the latter.

A difficulty of exactly the same character has become more and more evident in the case of the intermediate and final subjects, and here an attempt is being made to co-ordinate and render them continuous by appointing teachers of applied anatomy and physiology to demonstrate practically the intimate connexion of these sciences with medicine and surgery in the wards.

It may appear presumption on the part of one who has spent his life as a practising surgeon to venture to suggest an alteration in the method of teaching the purely scientific subjects; but it must be accorded that the teaching of these subjects is but a means to the end of producing an individual whose life will be spent in the same manner, with or without the addition of allotting a good half of the time to the service of a hospital and school. I would first point out that those entrusted with the direction of the education of the medical man are not justified in relegating the teaching of the preliminary subjects to the secondary schools, and washing their hands of any further responsibility. This procedure corresponds in character with the feeling of the student that the acquisition of knowledge in these subjects is but a means to the end of placing an examination behind him. There is every reason to encourage the teaching of science in secondary schools, but it is necessary at the same time to ensure that the proper relation of the subjects dealt with to those which are to follow is never lost sight of.

I would suggest that a remedy from some of these evils might be found by regrouping the subjects, and returning in some degree to the simpler course laid out for the student in earlier days. With these objects in view the following changes are recommended:

Elementary biology as a separate course to be excluded from the curriculum, and the congeries of subjects dealt with in the existing syllabus relegated to their respective positions at the commencement of the courses of anatomy, physiology, and pathology.

The first year of study to be devoted to anatomy, chemistry, and physics.

The second year to be mainly devoted to physiology, together with classes in anatomy so arranged that the subjects dealt with run concurrently with those to which they relate in the course of physiology.

The third year to be devoted to the study of pathology and pharmacology, including such elements of the course of materia medica as may be retained. During the summer session of this year elementary instruction in clinical methods.

The fourth and fifth years to be entirely devoted to professional subjects as at present.

Examination.

An examination in anatomy and physiology at the end of the second year.

No examination in chemistry and physics to be held by the licensing bodies, but the whole responsibility for sufficient instruction in these subjects to be thrown upon the respective teachers in the schools, who would satisfy themselves by means of class examinations.

An examination in pathology and pharmacology at the end of the third year.

The final examination in professional subjects to be held, as at present, after the termination of the fifth year.

The first criticism of this scheme which may be made is that it tends still further to curtail the time to be devoted to the practical study of anatomy. As an old teacher of anatomy this point has been thoroughly debated in my own mind, and the objection dismissed, for the following reasons:

The dissecting room has of necessity long ceased to be the centre of life in a medical school which it used to be, and this depends upon the following reasons: (1) The need for economy in time, (2) the scarcity of anatomical material for dissection. Neither of these difficulties are likely to become less—in fact, there is unfortunately reason to apprehend that the latter is likely to become increasingly urgent. Hence the tendency is for the practical teaching of anatomy to pass still more from the dissecting bench to the classroom, with, it is true, a risk in decline in delicacy in manipulation and in intimate knowledge of the finer details of structure, but with a distinct economy of time.

Against these disadvantages the following points must be considered. Allowing intimate knowledge of the anatomy of the human body to be the most important item in the earlier study of medicine, the plan proposed gives to the anatomical teacher the manifest advantage of virgin soil into which to instil instruction, while the class teaching in direct connexion with the course of physiology in the second year ensures a proper sense of the relation of the structure of the body to its functions to be grasped. Again, the use of sections of the body and of *x*-ray photographs allows the student to gain a true sense of the relations of the various structures in the architecture of the body more readily than used to be the case.

A more weighty argument lies in the urgent necessity which exists of carrying on the knowledge gained in the anatomical department and utilizing it in relation to the study of the later subjects. Its relation to the course of physiology has already been dealt with, and it is no less important that as an applied subject it should take its proper place in the courses of pathology and in all the different sections of medicine and surgery. If this be properly kept in mind and arranged for, the study of anatomy will only cease with the termination of the medical course.

I think that the relegation of the commencement of the study of physiology to the second year is justified by the assumption that it is better for the student to become first acquainted with the structure and mechanism of the human machine, and that the purely mechanical side of function is a more suitable introduction to the study of physiology than the more intimate problems dependent upon an appreciation of vital action. It would be presumption on my part to make any further suggestion regarding the teaching of physiology beyond making the broad statement that it should be so designed as not only to progress together with the study of anatomy, but also in sympathy with that of the chemical laboratory, the pathological laboratory to which it is an introduction, and later that a special course should carry the application of physiological knowledge to the wards.

In considering the question as to how far the student in the past has benefited by the physiological course, it should be pointed out that the responsibility lies equally between the teachers of the intermediate and advanced subjects, and that while the physiologist should strive to make his course strictly appropriate to the needs of the student of medicine, the clinician himself should point out and dwell upon the light that physiology sheds upon the many problems of disease that are dealt with in the wards.

The direct passage of the student from the study of anatomy and physiology to that of morbid anatomy and physiology is becoming more and more generally recognized as the rational sequence of progress in acquiring an elementary knowledge of the science of medicine, and the same may be said for the combination of pathology and pharmacology as the logical introduction to the clinical study of disease. The sequence is not only rational but also an easier one for the student, freshly primed as he is with the facts of anatomy and the methods by which the normal vital functions of the body have been investigated and determined.

The allocation of the whole of the third year to these subjects, moreover, is not so prodigal of time as may appear on first consideration, since the student becomes acquainted with a large part of the general principles of medicine, and during the summer session commences to acquire familiarity with clinical methods while the lessons of the physiological laboratory are fresh in his mind. To obtain the full advantage of this rearrangement of the preliminary and intermediate courses some readjustment would be necessary in the various departments, particularly in the case of the assistant teachers or demonstrators.

The first element for success would lie in a close co-ordination between the heads of the several departments concerned, the teachers forming a small board to meet frequently to discuss matters connected with the course of instruction, and also the progress of the individual pupils.

The second would lie in establishing a closer bond of intercommunication between the demonstrators. This

could best be effected by arranging that as many as possible of the demonstrators should work in more than one department. Thus anatomy and physiology, particularly with regard to histology, physiology and pathology, physiology and pharmacology, chemistry with chemical physiology and chemical pathology, while demonstrators of anatomy and physiology might take part in the courses of practical surgery, and those concerned with instruction in clinical methods. There can be no doubt that in a medical school the class of man willing and able to undertake such combined duties would be easily found, and for those who take up the duties of a demonstrator only as an educational phase of their career the appointments would be particularly valuable.

I do not propose to dwell upon the work of the two clinical years, because the existing system appears to me the only remaining portion of the old curriculum calculated to evolve the type of man fitted to undertake the duties either of the consultant or the general practitioner. These two years of hospital life now furnish the sole opportunity to the student of acquiring confidence to face the responsibilities which lie before him, and to learn by precept and example what should be the attitude of the doctor towards his patient. It is during this period that the student gets to know his teacher and the teacher his pupil. It is now that the student gets an insight into professional manners, acquires the proper humanitarian feeling towards his patient, and gains his first intimate knowledge of human nature. Science alone, apart from a knowledge of human nature, and the capacity to read men and sympathize with their weaknesses and difficulties, can do little towards the evolution of the successful practitioner.

I would only enter a plea for the utmost simplification in methods of diagnosis and the need for exactitude of observation being constantly kept before the student. It should be impressed upon him that an *x*-ray examination is to be regarded as affording corroborative evidence and not as a means of making a diagnosis, that surgeons long before the days of bacteriology were able to draw a distinction between staphylococcic and streptococcic infections; in fact, that the natural senses properly cultivated suffice for the very great majority of the work that he will be called upon to perform. The habitual resort to special methods, and the belief that complicated apparatus is necessary in the investigation of the ordinary problems of disease, is likely to do as much towards the destruction of the art of the practitioner as the methods of science can do to help it.

Up to this point we have been concerned with the undergraduate and the attempt to inculcate in him a broad acquaintance with the principles of medicine and of the practice of the art, and it is claimed that in a scheme such as has been outlined proper compromise has been effected to ensure a sufficiently scientific basis upon which his future life's work can be built up. From this stage a great majority of the men pass from the schools, some after fulfilling the duties of the various junior posts in the hospitals, to the actual practice of their profession, and a new sphere is opened up to them in which they will need to rely on the experience and example of their senior fellow practitioners to complete their education as a doctor. A minor proportion will desire to remain and increase their store of knowledge and experience, to become workers at the science of medicine, or eventually to take part in the education of others.

Can it be said at the present time that the best opportunities exist for this latter class, or that arrangements allow such a course of study as has been suggested to be amplified to meet their needs? It is true that a man in his own school and amongst his own teachers is in a position to follow out some line of investigation he may wish to embark in, and again certain special hospitals not directly connected with a medical school may offer him opportunities for following their practice, or even to undertake a research—for example, in neurology, ophthalmology, laryngology, or urology. He also has the opportunity of meeting financial difficulties by undertaking the duties of a junior teaching post in his own school. Nevertheless such men have in the main to work out their own salvation, and conditions are far from favourable for easy or continuous study.

For the graduate from the provinces, from the dominions, or from abroad, except for the possibility of establishing an arrangement with an individual teacher, matters are far more difficult, and should he desire to follow up more than one subject he will probably require to visit a number of institutions, neither of which he can regard as his home.

I do not think that graduates from abroad are to be regarded merely from the point of view of men who may carry the prestige of the British School of Medicine into other lands, but rather as members likely to contribute an important share towards the success of the school to which they may become attached. The same advantages obtain to the entry of students from any source in the British empire, each introduces a different experience of men and of methods, the diffusion of which may exert a vivifying and stimulating influence on existing lines of thought and on the direction of action. Under existing circumstances these men are in a position to do little beyond "walk the hospitals," or to undertake research in a laboratory as individuals and not as members of a school for which they may develop a lasting pride and affection. Their presence in the past in a primary school of medicine has been an actual source of embarrassment, for, if in any numbers, they necessarily either engross a large part of the attention of the teachers to the detriment of the undergraduates, or they fail to attain the object for which they have come.

A still larger class of graduate student needs to be alluded to: the practitioner who wishes to refresh, modernize, and augment his store of knowledge and fill in the gaps in his powers which experience has made him realize; or those who wish to perfect themselves in the practice of one or more of the so-called specialities. Certain provision exists for men of this class, but even in dealing with them it has come to be realized that special arrangements are necessary. In London successful attempts have been made by the West London and the Seamen's Hospitals, both of which institutions are entirely devoted to this object. They have performed particularly valuable work for members of the services and for many practitioners, but their resources are not sufficiently large to meet the future needs. The attempt made to provide for post-graduate instruction by the polyclinic, even supported by the energy and enthusiasm of Sir Jonathan Hutchinson, a pioneer in this field, failed from the fact that the essential element for success, an attached hospital, was lacking.

At the present moment, therefore, powerful incentives to the establishment of an efficient system of graduate instruction exist. A strongly awakened desire to further the advance of medicine in this country, the wish to attract the student who has been accustomed in the past to seek post graduate teaching in the schools of the Continent, and the need to meet the growing tendency of the practitioner to fit himself to practise one or more of the so-called specialities with efficiency. In the light of the assumption that this latter class may augment enormously in numbers if the system of out-patient clinics be developed by the Ministry of Health, the wants of these men may become urgent.

Recent movements (in London) have been in the direction of trying to organize and co-ordinate the teaching of the large medical schools and the special hospitals, and by a common effort to supply the opportunities desired. It must, however, be allowed that this is by no means the first occasion upon which the establishment of such a scheme has been attempted, and that previous attempts have been attended by very modified success or by absolute failure. The reasons of this want of success in the past are probably not far to seek, the main elements being the absence of a strongly organized centre and the fact that schools adapted to the purpose of primary instruction in medicine are ill suited to the needs of the graduate student.

The combined demands of hospital practice and duties in a medical school are as much as any consulting physician or surgeon is in a position to meet. To add a separate series of lectures and classes is to throw an additional task upon an already overburdened man.

The courses of work suitable for the instruction of undergraduates are practically useless for the man who has already obtained his degree or diploma. The most successful teachers of undergraduates, probably by reason of the dogmatic nature of the instruction given and the necessary limitation of its scope, are by no means necessarily those who can interest and enthuse the graduate, as anyone who has passed his life in a medical school is well

able to appreciate. Many teachers who are able to enforce broad general principles founded upon practical experience, may lack the necessary knowledge of literature and acquaintance with the results of the most recent methods of scientific research needed by the graduate. Yet, literary erudition and extensive acquaintance with the most recent methods and results of research, while not essential for a teacher whose task it is to produce an efficient practising "doctor," are necessary qualifications for the leadership of the graduate who aspires to follow the higher paths of medicine.

In the foregoing remarks it is not intended to suggest that the highest qualifications are not advantageous in imparting the most elementary instruction. If we consider the example of the greatest teachers of the past, such as Huxley or Michael Foster, we find them expending a great part of their energy in imparting the fundamental principles to the junior students, and entrusting to their younger colleagues the detail that the pupil himself is apt to regard as the more difficult part of the subject.

The atmosphere of a primary medical school, where the main object is to impart elementary and practical instruction, is unsuitable to the acquirement of intimate acquaintance with detail, and in a considerable degree to the freedom of thought, the sceptical attitude towards received and adopted views, and the single-minded desire to advance medical science by research which should animate the graduate who seeks to follow the higher paths of medicine. In the primary medical school the performance of the whole of the practical work in connexion with the patients in the hospital is engrossed by the undergraduate students and the house officers. In the laboratories, again, the main energies of the departments are more or less monopolized by the class teaching, and the graduate engaged in a research, except for his direct association with his chief, must work as an individual, and the valuable stimulus of a close relationship with his fellows is missing. How gladly, for instance, would many a graduate undertake the duties of the ordinary junior posts in the hospital, with the abundant opportunities afforded of observation, from which he is debarred by the simple fact that no room exists for his services? In fact under existing conditions, except as the occupant of one of the junior teaching posts, the graduate student forms the fifth wheel of the coach in a primary medical school.

If these premisses be correct, it is clear that in making provision for the many sides of graduate study which exist, adaptation of the present system will scarcely suffice; for the needs of the student of advanced medical science, and those of the practitioner of medicine, are of different degree and nature, and even for the latter the position of the graduate and undergraduate is quite distinct.

Graduate instruction requires to be utilized for more exacting purposes than that of merely improving the capabilities of the practitioner—it must also include facilities for workers at the science of medicine engaged in experimentation and investigation, and afford opportunities for those preparing to occupy professorial chairs. It cannot be restricted to affording help to the practitioner and giving foreign visitors a glimpse of the views held and the methods in use in this country. We cannot be contented alone with a series of courses such as have been held in the past in Vienna, in which the greatest amount of information is given in the shortest possible period of time—a system in many respects comparable to the cramming for a scholarship or other examination in the early part of a student's career. The question requires to be solved by establishing a system which not only coordinates the extensive fields of observation and sources of instruction which already exist, but also by the founding of secondary schools of medicine, one of which might form a centre for the whole country.

The former of these objects is already the subject of serious consideration and organization, and I propose to make little further allusion to it than to express the opinion that the entire direction of this work should be under the control of the secondary medical school to be now outlined.

The first essential for a graduate school is the possession of a large and well-appointed hospital entirely devoted to the purpose, with sufficiently well-equipped and extensive laboratories directly attached. No distinction should be made between these two departments of the school; for the hospital is the first-line laboratory of the student of medicine—it provides him with his field of observation, here he discovers the points which require investigation, it is the ever-welling fountain that engrosses his thoughts, and its inspiration tends to keep him on the direct track and prevents him from wandering into the by-paths of abstract lines of investigation.

The greatest of the services of the great war has been to demonstrate the advantages which accrue from the presence of the worker in pure science in the field of practical medicine—an observation definitely substantiated by the experience gained in all attempts to establish laboratories for pathological research, except in direct connexion with a working hospital.

Speaking in the presence of a number of members of a large and important university in the provinces, where medical education is already centralized, I am aware that some of the further remarks I am about to make may not be strictly suitable; but while the arrangements which may have to be made may not be of a similar nature in consequence of the better organization and equipment of the departments for the teaching of the preliminary and intermediate subjects, yet the principle suggested, that graduate instruction needs special provision to be made for it quite independent of undergraduate instruction, is equally applicable. It is also, I believe, certain that the need for post-graduate instruction throughout the country is likely to become a much more general and urgent matter, should the system of out-patient medical clinics be set up in the near future by the Ministry of Health.

London, with its many medical schools under only nominal university control, and the numerous hospitals, laboratories, and museums already in existence, offers a more complex question. I believe, however, it is in some respects a more easy one of solution, in consequence of the greater number of graduates likely to avail themselves of any advantages offered and the more numerous teachers who could be called upon.

The staff of the school should be of the professorial type, but I think it would be neither practical nor advantageous for it to be composed entirely by permanent whole-time professors. In the laboratories this would probably be necessary, but in the case of the clinical work any difficulty might be surmounted by adopting the system followed by the Assistance Publique of Paris in appointing physicians and surgeons to the individual hospitals for a limited period. Under such a system officers from the various schools in London might be seconded, say, for a period of five years to serve as professors in the secondary school. The method would possess the advantages of regularly infusing new blood into the graduate school, of giving a valuable experience to the teachers of undergraduates, and in establishing a common bond of sympathy in mode of thought amongst the several schools. It might do much to raise the general standard of education, while at the same time it would not disturb the time-honoured and successful method of clinical teaching now in vogue.

Not a few of us must, I think, have been interested in the views put forward by Sir James Mackenzie concerning the difficulties which attend the teacher whose life is passed in consulting practice in his limited opportunity of observing the beginnings of disease or of tracing the continuous progress of the disease in the individual when it has once become established. Mackenzie argues that the general practitioner is the only man suitably placed to elucidate the problems of the commencement of disease and their progress towards their eventual termination. Hence he asks that the general practitioner should take a more active and prominent part in the education of the student. I do not think that this proposition affects the question of primary medical education. In the short period at the disposal of the undergraduate it is enough for him to master the fundamental facts regarding the normal structure and functions of the body, the effects upon them of disease, and the characters of disease when developed. The first steps in his education must necessarily consist of the investigation and appreciation of the strongly marked types, and the extension of his knowledge by following the gradually weakening links which stretch backward to the normal must be the study of the man

who has at least reached the status of a graduate. In the secondary school, then, the accomplished general practitioner might find a proper place.

The hospital would furnish a certain number of graduates with opportunities for observation and research, and also afford facilities for practical work and technical development of the highest class. The graduates would take the place of the junior officers in a hospital attached to a primary medical school, acting as assistants to the professors. These advantages, however, could be enjoyed by only a limited number, and the occupants would need to be selected with care and due consideration of the aims they had in view.

The further field of action is identical in intention with the efforts that are at present being made for the co-ordination of existing sources of instruction, and making them available for the practitioner who desires to go through a limited course for purely utilitarian purposes. It is obvious that if the scheme of a central secondary school should find favour, that the associations who have the work of co-ordination in hand are the proper agency through which the entire scheme could be completed.

This being the case, the school would be the centre to which all graduates of either class would gravitate, and from it the men would be allocated in whatever special direction and to whatever special teacher they might desire. Thus the whole wealth of material possessed by the hospitals, infirmaries, laboratories, and museums of the metropolis would acquire a bond of union, and a vast amount of opportunity now so cursorily utilized might be opened up to any graduate student. The graduate provided with such a central institution would no longer be a wanderer tilling a solitary furrow, for his school would not only provide a vast field of action, but would also bring him into contact with workers from every school and land—an association which could hardly fail to widen his horizon and extend his experience, not only of methods, but of men.

The advantages to be gained, moreover, would not be confined to the student alone; the teacher also would benefit in no small degree from contact with the different class of pupil, to whom his duty would consist in stimulating the acquisition of knowledge of the highest grade and arousing the faculty of research. Again, the existence of a school of medicine with this scope and these ends in view could not fail to react inspiringly upon the primary medical schools around it. It would tend still further to the elimination of dogma and empiricism from the practice of medicine, and to heighten the standard of education throughout.

A GIANT MUCOCELE OF THE APPENDIX.

BY

W. GIFFORD NASH, F.R.C.S.

THE following case is reported because examples of such great distension of the appendix appear to be very rare. Kelly, in his work on the vermiform appendix, fol. 288, gives an illustration of this condition. He mentions a case related by Sonnenberg in which the appendix was 14 cm. in length and 21 cm. in circumference. In my case at the time of removal the length was 17.7 cm. and circumference 19 cm. Virchow described a case in which the appendix was as large as a man's fist. In the case related below there is no evidence as to the duration of the change in the appendix, as the patient appears to have had no symptoms until a few days before admission. Kelly says that the walls of the cystic appendix are attenuated and transparent, but in this case they were extremely thickened.

The patient, a male aged 64, was admitted to the Bedford County Hospital on June 27th, 1918. Two days before admission he was seized with abdominal pain, followed by vomiting. The pain began in the umbilical region, but later settled in the right inferior quadrant of the abdomen; it was relieved by morphine. The bowels were constipated and an aperient was given without result.

On admission to hospital the general condition was good, the pulse was 92, and temperature 98.6° F. On palpation there was rigidity of the muscles and tenderness over the caecum. A swelling could be felt in the caecal region, but hyperaesthesia and rigidity made it difficult to palpate.

Two-thirds natural size.

Operation (June 27th).—An incision was made over the caecum, and a large elongated firm lump was then felt lying behind the caecum and ascending colon, which suggested an enlarged kidney. This was delivered and found to be attached to the apex of the caecum. It was removed, leaving an opening into the caecum half an inch in diameter. A purse-string suture was applied, and the stump invaginated.

After the operation vomiting continued for several days, which caused a good deal of exhaustion and difficulty in feeding. The man left the hospital quite well on August 1st.

The tumour which was removed was 7 in. long, 7½ in. in circumference, and weighed 8½ oz. It was sent to Mr. S. G. Shattock, F.R.S., at the Museum of the Royal College of Surgeons, who very kindly supplied the following report:

A vermiform appendix enormously enlarged from the accumulation of mucin within it, after its occlusion. The distended structure, which is somewhat pyriform like the gall bladder, measures 14 cm. (5½ in.) in length and 6.5 cm. (2½ in.) in greatest transverse diameter. Its surface is of a dull white colour and quite smooth except for the presence of a few shallow subcircular pits like those seen in the peritoneal thickening over the spleen or liver or on ovarian cysts. The wall of the sac, which is of extreme density, is 0.7 cm. in thickness.

Microscopic sections show that it is constructed of parallel lamellae of dense fibrous tissue furnished with a moderate number of flat connective tissue corpuscles, uniformly distributed and regularly disposed between the fibres. The cells increase in number towards the inner aspect, where there are, in addition, lines and larger groups of lymphocytes in the clefts. The innermost zone of all, however, is devoid of cell nuclei and in a state of necrosis, the cells, as shown by the use of scharlach, being represented only by elongated groups of fat droplets.

There is no trace of epithelial lining, the necrotic fibrous tissue being immediately succeeded by an adherent layer of mucin in which there are embedded calcareous molecules and larger spherules, the chief of which have a laminar structure. On the narrow, proximal and less thickened end there may be recognized a small patch of the mucous membrane of the caecum which was opened in the removal of the appendix.

AN out-patient department for the treatment of nervous diseases is being instituted in connexion with the Bethlem Royal Hospital, London, S.E. Persons of the educated classes, in a presumably curable condition, are alone eligible for admission as in-patients and are received either free in necessitous cases or at a fixed inclusive rate of three guineas a week. With a view to the early treatment of eligible cases voluntary or uncertified cases are admitted. It is hoped that the new department will prove to be of great help to those requiring early advice before their condition has become so urgent as to require the medico-legal label of insanity. The department is established in another building, quite apart from the main institution, and will be known as the Hospital for Nervous Diseases. The address is 52, Lambeth Road, S.E. Consultation between members of the hospital staff and the medical practitioner in attendance upon the case will be encouraged.

POLYCYTHAEMIA VERA (RUBRA) COMPLICATED WITH HYPERTHYROIDISM.

BY

EDGAR J. TYRRELL, M.B., B.S.DURH.,

LONDON, E.C.

THE note on polycythaemia hypertonica[1] in the Epitome of Current Medical Literature of October 25th, p. 14, induces me to think the following case may be of interest:

A man, aged 45, came to consult me regarding his high blood pressure. He had been under treatment for this condition for over two years, but his symptoms had increased in severity, and he was now subject to recurrent attacks of vertigo, which rather alarmed him. The history was one of gradually increasing cyanosis during the last eight years, some shortness of breath, and increasing muscular weakness. About April, 1918, some bombs which fell near his house during an air raid greatly upset him. Within twenty-four hours this was followed by swelling of the neck and thyroid gland, which became as large as two duck's eggs. The swelling gradually receded until it became the size of a hen's egg and had remained in that condition. From this time he became nervous and exhibited signs of hyperthyroidism. During the last month he had had several attacks of giddiness with some confusion of mind, lasting a few seconds. There was no history of specific disease.

His face showed a well-marked degree of cyanosis. The superficial temporal arteries were tortuous and thickened. The radial pulse felt hard and gave the impression of high tension. The artery was thickened. The blood pressure, taken on three separate occasions, was always about 120 mm. Hg. The heart was not enlarged. The urine contained a trace of albumin, but microscopic examination showed no casts or anything abnormal. The spleen was enlarged and reached to 3 in. below the costal margin. The right lobe of the thyroid gland was prominent, the swelling being as large as a hen's egg. There was slight exophthalmos.

A complete blood examination was made, with the following result:

Red blood corpuscles	9,600,000 per c.mm.
White blood corpuscles	25,000 ,,
Haemoglobin	125 per cent.
Colour index	0.8

A differential blood count revealed:

Polymorphonuclear neutrophiles ...	80.8 per cent.
Small lymphocytes	10.4 ,,
Large lymphocytes	5.6 ,,
Eosinophiles	0.4 ,,
Mast cells	2.8 ,,
Myelocytes	0.0

There was therefore both polycythaemia and leucocytosis.

In the literature on polycythaemia, I could find no case mentioned in which the thyroid gland was involved. This must be an unusual complication. There are apparently two varieties of polycythaemia, each with its own well-marked characteristics:

(*a*) *Polycythaemia Hypertonica*, which has been described by Geisböck[2] and also by Stähelin,[3] in which there occurs a high blood pressure, hypertrophied heart, an increased number of red blood corpuscles up to six to eight million or more per c.mm., a pulse which is generally regular, but prone to extra-systoles. No increase in size of the spleen. Arterio-sclerosis and nephritis.

(*b*) *Polycythaemia Vera*, as described by Vaquez and Osler,[4] and *Polycythaemia Rubra*, mentioned by Clifford Allbutt.[5] These appear to be the same condition, in which the red blood corpuscles may reach to ten million or more per c.mm. The arteries are thickened and tortuous, but with normal blood pressure and no hypertrophy of heart. The spleen is enlarged. The urine contains a trace of albumin.

Osler says that the three cardinal features are: a change in the appearance of the patient, enlargement of the spleen, hyperglobulism; there is a moderate leucocytosis without any characteristic differential change; the red corpuscles may reach to even thirteen million. As a rule they are normal in appearance and shape.

The blood is always very viscous; this was quite marked in the case here recorded, and some effort was required to draw the blood up into the pipette. This gives one the impression that clotting may readily occur in the capillaries if the pulse becomes slowed and the blood pressure low. A heart which is not hypertrophied must feel the strain of driving such an increased mass through thickened and narrowed vessels. It may be that the attacks of "vertigo and confusion" complained of had some connexion with this increased viscosity. It has been stated[6] that in epilepsy the coagulation time is much shortened. It is only reasonable, therefore, to assume that the "attacks" are something in the nature of petit mal; the description seems to fit in with the latter.

In the treatment of viscosity iodine has been suggested. My patient says he has been treated with potassium iodide for over two years, with apparently no effect on the viscosity. It must be remembered also that there has been considerable hyperactivity of the thyroid gland during the last eighteen months. If iodine be one of the chief active ingredients of thyroid secretion when the thyroid gland is overacting, this man's blood must have become saturated with iodine—and still there is excessive viscosity.

McCarrison says[7] blood changes of a fairly definite character occur in endemic goitre. The number of erythrocytes is diminished as well as the haemoglobin index. The coagulability of the blood is increased; the total number of leucocytes is reduced. The blood changes of exophthalmic goitre resemble those of endemic goitre.

It is reasonable to think, perhaps, that the administration of thyroid gland substance may be of benefit in these cases. In the case quoted above there are symptoms of hyperactivity of the gland and the thyroid is considera ly enlarged; but is it not a fact that in hyperactivity the internal secretion is perverted in character? It is excessive in quantity but deficient in quality. It would be interesting to know whether thyroid has ever been used in the treatment of polycythaemia, and, if so, what was the result.

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FATAL ANAPHYLAXIS FOLLOWING PROPHYLACTIC INJECTION OF DIPHTHERIA ANTITOXIN SUBCUTANEOUSLY.

BY

A. D. MCCALLUM, M.B., CH.B.EDIN.,

PRESTON.

THE death here recorded was apparently an instance of severe anaphylaxis. Sir William Osler mentions the rarity of the condition and alludes to the symptoms of fatal cases, namely, extreme distress, dyspnoea, cyanosis, respiratory failure, and collapse. He warns against inoculation of persons who have been previously inoculated with antitoxin, persons subject to asthma, and persons susceptible to the proximity and smell of horses. There is no evidence of this boy having been previously inoculated with antitoxin, and on my arrival at the house he was playing on a coal cart drawn by a horse. The bronchial colds mentioned later may have partaken of the character of asthma. Sir William Hale-White mentions two fatal cases occurring rapidly after the injection of diphtheria antitoxin.

On September 25th, 1919, I gave an apparently healthy boy, aged 8 years, a subcutaneous injection of diphtheria antitoxin; he collapsed and died within five minutes. The injection was made at his home, and was given as a prophylactic, his mother having been removed on the previous evening to Preston Isolation Hospital, suffering from faucial diphtheria. The serum used was supplied by the Municipal Health Department of Preston, and was marked on the cover as potent until January 1st, 1921. The dose given was 2,000 units. The injection was made subcutaneously through the skin, previously painted with tincture of iodine, to the inner side of the angle of the right scapula, and the syringe used was an all-glass Burroughs, Wellcome and Co.'s serum syringe, which had been previously boiled for five minutes. Following the injection of the boy, his three younger sisters were injected with the same dose and in a similar manner without, at the time of writing (September 28th), any bad result. Within two minutes of the boy's inoculation he complained that "it had gone to his stomach," and he immediately ran out of the kitchen of the house, where the injection was made, to the w.c. in the yard. A minute later I heard him call out "Daddy! Daddy!" and his father immediately ran out to him and as quickly returned and informed me that his boy was very ill and was apparently choking. I followed the father into the yard and met him carrying the boy in his arms from the w.c. The boy's face was deeply cyanosed, and he was apparently collapsed. I carried him quickly into the kitchen, placed him on the sofa, with his head hanging over the edge, and after pulling out his tongue and swabbing from the pharynx a considerable collection of mucus, commenced artificial respiration. At this time the heart beats and

respirations had ceased, and the pupils were widely dilated. Other medical aid was summoned and artificial respiration continued for three-quarters of an hour without avail.

A *post-mortem* examination was conducted by Dr. Pilkington the following day, and, except for a mass of caseous tuberculous glands in the mesentery, all the organs were healthy. There was no evidence in the pharynx, glottis, or larynx that the boy had recently suffered from diphtheria. The left ventricle of the heart was contracted and empty; the right ventricle was flaccid and contained dark fluid blood.

The boy's parents are healthy, and from his previous history it appears that, except for susceptibility to bronchial colds during the winter, he enjoyed good health.

I may, perhaps, add that at the *post-mortem* examination the stomach was found to contain about half a pint of undigested food. The injection was made at 10 a.m. and the last meal (breakfast), consisting of bacon, bread-and-butter, and tea, was taken at 8.30 a.m.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CALCIUM CHLORIDE AS A HAEMOSTATIC.

Recently a man, aged 25, consulted me for enlargement of the right tonsil. The organ was the size of an ordinary walnut, and removal was advised. He elected to have this done at once, and also decided against a local or general anaesthetic. The tonsil was easily removed by a spade guillotine; bleeding was slight, and the man walked away a few minutes afterwards. An hour later I was hastily summoned, and found him somewhat blanched, throwing up blood clot every few seconds, and with a pail before him which must have contained a pint of blood at least. Attempts to localize the bleeding spot by examination only caused more violent retching and gagging with more bleeding, and for the same reason spraying with a styptic also failed. The bleeding was venous, and an attempt to arrest by digital pressure failed for the same reason as the other measures. At last I injected into his gluteal muscle a hypodermic syringeful of a 1 in 4 solution of calcium chloride, following this with a similar injection into the other gluteus. The amount of the salt injected was 8 to 10 grains. The effect was striking; the bleeding ceased in a minute and a half and did not recur. He passed the night in a half-sitting posture on the couch, and no subsequent recurrence took place.

A week afterwards he came up with a slight but persistent return of the venous oozing, which was at once arrested by injecting 4 grains of calcium chloride into the gluteus as before; it did not recur.

It is to Dr. Grove of St. Ives, Cambridgeshire, that I am indebted for the knowledge of this measure; indeed, many local practitioners will remember the valuable paper he read some years ago, at a meeting of the Cambridge Medical Society, on the uses of calcium chloride in practice.

Histon, Cambs. L. Gwillim Davies, M.D.Cantab.

ACUTE SUFFOCATIVE CATARRH.

The case recorded by Dr. C. O. Jones (October 11th, p. 466) recalls two cases which I saw within a couple of years in a working-class practice in Scotland. The first was in a woman of 30 years, who was seven months pregnant. The history was that, after washing down the outside stair leading to her house about 9 p.m., she was attacked with sudden breathlessness and was with difficulty able to ascend the stair. A neighbour assisted her into bed and sent for me. When I arrived she was half reclining on her right side and gasping for breath as if she had a very severe attack of asthma. A quantity of pink froth was coming from her mouth; I calculated that from beginning to end she brought up about a pint. The whole chest was full of râles; the pulse was rapid and feeble. She died within an hour of the onset of the attack. Her family doctor informed me that, with the exception of an attack of pleurisy some years before, she had always enjoyed good health.

The second case was in a man aged 28. The attack came on while he was asleep. There was the same dyspnoea as in the first case, and a large quantity of froth was brought up, but it had not a pink colour. There was a history of chronic chest trouble which I took to be tuberculous, but the râles all over the chest prevented my being able to locate it. I sent the man into hospital at once, but he died within a few hours of the onset of the attack.

Birmingham. Robert Anderson, M.D.

Reports of Societies.

TUBERCULOSIS AND LIFE ASSURANCE.

At a meeting of the Assurance Medical Society held on November 5th, with the President, Dr. F. Parkes Weber, in the chair, Dr. Otto May read a paper on some aspects of the tuberculosis problem in life assurance, namely, (i) the significance of a tuberculous family history; (ii) the question of "contact-infection"; (iii) the assurance of individuals with a personal history of tuberculosis. Under the first head he dealt with the universal experience that tuberculosis "runs in families." The frequency with which three, four, or even more members of a family died of this infection was far greater than could be accounted for by any fortuitous incidence of the disease. But the explanation was still a matter of debate.

Even if an inherited "predisposition," or "lack of resistance," were accepted, it must not be assumed that each individual of a tuberculous family was specially susceptible to this disease. For this reason we must guard against the assumption that a tuberculous family history necessarily rendered the proposer an impaired life, acceptable only at special rates. The question was one for decision by the actuary rather than the medical man. Some light was thrown on this problem by an investigation by Rusher and Kenchington, with the assistance of the late Dr. E. M. Light.[1]

They investigated the mortality in a group of some 80,000 proposers with a family history of tuberculosis, the total experience comprising 622,462 policy-years, with an average observation period for each proposer of nearly eight years. The data were grouped in various ways, according to age at entry, sex, nature of insurance (whole life and endowment), and details of family history—whether the tuberculous deaths were in lineals (father and mother), collaterals (brothers and sisters), or lineals and collaterals.

The results, expressed in ratios of actual to expected deaths, varied considerably in different groups, but the chief findings might be roughly summarized as follows:

1. The mortality experienced in the early years of assurance was heavy, especially for young ages at entry. In other words, the effect of a definite tuberculous family history shows itself mainly in the younger ages at entry and the early years of assurance.
2. After the first five years of assurance the excess mortality is less marked, especially in the case of endowment assurances, in which it comes well within normal limits. The latter fact suggests the importance of "selection" by the assured—of the "bad life" more or less consciously choosing a whole-life assurance rather than an endowment.
3. As regards the relative importance of lineals and collaterals in this respect, the authors "have no hesitation in expressing the opinion that at least as much attention—if not more—must be given to a history of tuberculosis among brothers and sisters as amongst parents."
4. The degree of tuberculous family history is of much less importance than the age at entry, and may, in fact, be said to have no practical value for assurance purposes over age 35 at entry.

In 1914 appeared an elaborate medico actuarial investigation, embodying the combined experience of the leading American companies with regard to various classes of special risks. The findings with regard to tuberculous family history were particularly interesting, as in most of the groups, in addition to the age at entry, the weight, and in some cases the height, were taken into account.

The logical conclusion from these data was that, in estimating the importance of a positive family history of tuberculosis, two additional factors must always be taken into account: (1) age at entry, (2) weight and build.

In proposers under 35 the risk should be treated as increased unless all other circumstances were unimpeachable — weight (not below good average), occupation, habits, and past history (freedom from any suspicion of tuberculous disease). If any one of these factors was unfavourable in a proposer under 35, a considerable debt should be placed on the policy; if two factors, for example, weight and occupation, were unfavourable, the

[1] *Journal of the Institute of Actuaries*, 1913.

debt should be very heavy or the case declined altogether. In the case of older proposers the question of weight was not so important, but Dr. May suggested that no proposer under 50 with a tuberculous family history should be accepted at tabular rates if the weight was appreciably under the average for the height and age.

Since actuarial investigations showed that the extra risk was essentially an early one—in the first few policy years—an addition to the premium did not afford adequate protection to the company. The "diminishing deduction," on the other hand, formed a far better method of dealing with these cases, and, in fact, with all extra risk associated with tuberculosis, whether family history, exposure to contact infection, or a past history of the disease.

Under the head of contact infection, Dr. May discussed the importance, if any, that should be attached to the circumstance of a proposer living or having recently lived in association with others suffering from "open" tuberculosis. This raised the problem as to the usual mode of tuberculous infection, recently discussed by Dr. Batty Shaw.[2] According to this view, true contact infections in adult life were so exceptional as to be almost negligible, and hence, from the assurance point of view, not much importance need be attached to a proposer's living in a tuberculous environment. In seeking evidence for or against this theory it was important to exclude cases of blood relationship, the interpretation of which would be complicated by the question of hereditary predisposition. Striking evidence in its favour was the result of the *Second Study of the Statistics of Pulmonary Tuberculosis: Marital Infection*, by E. G. Pope, edited by Karl Pearson, 1908. If "contact infection" were a frequent phenomenon, one could hardly postulate a more favourable condition for its occurrence than a healthy husband living with a phthisical wife, or vice versa. Yet Pope found that the probability of infection between husband and wife was considerably less than between parent and child or brother and sister, a result suggesting that hereditary "lack of resistance" played a considerably greater rôle than direct infection. On the other hand, Ward,[3] from a consideration of 156 married couples, of whom one of each had been notified as phthisical, arrived at the conclusion that marital infection was extremely common. Dr. May then inquired in what circumstances "mass infection," or exposure to a concentrated dose of tubercle bacilli, was likely to occur. The size of the dose necessary to overcome the resistance of the body differed, of course, in different individuals, and in the same individual from time to time. But equally or more important was the nature of his environment when exposed to the risk. Contact in good hygienic surroundings with adequate ventilation was obviously far less likely to be harmful than in a close, ill-ventilated place.

As to the treatment of "contact cases" in connexion with life assurance proposals, the points to be considered were:

(*a*) Family history.
(*b*) Personal history (especially with regard to tuberculous infection).
(*c*) Personal condition of proposer, including age.
(*d*) Hygienic conditions under which contact occurred.

If all favourable, ignore contact. If (*a*) unfavourable, but everything else satisfactory, ignore contact or put a small debt on the policy. The family history would be treated on its merits.

If (*b*), (*c*), or (*d*) unfavourable, defer the proposal or put a heavy debt on the policy, perhaps with an offer of reconsideration at a later date.

If proposal unfavourable in two or more of these respects, it should be deferred or declined.

Dealing with the assurance of individuals with a personal history of tuberculosis, Dr. May said that the principal types of tuberculous history met with in proposers for life assurance were:

(*a*) Tuberculous adenitis.
(*b*) Tuberculosis of bones and joints.
(*c*) Genito-urinary tuberculosis.
(*d*) Pleurisy—dry and with effusion.
(*e*) Pulmonary tuberculosis.

The bearing of (*a*) and (*b*) on assurance was discussed by the society in 1901.

Mr. Eccles then expressed the belief that in many cases chronic enlargements of cervical glands in childhood were not tuberculous, and that, even if they were, provided they had been recovered from, with or without operation, the prospects of life were not appreciably affected if no other unfavourable circumstances existed—for example, a bad family history or poor physique. Though the subsequent discussion manifested some differences of opinion, its general trend was towards accepting the view that a past glandular tuberculosis did not materially add to the risk of subsequent phthisis, while the possibility of its acting as a protective agent against subsequent infection was not overlooked.

A good many proposals showed a past history of genito-urinary tuberculosis, usually one of nephrectomy or excision of a testicle for tuberculous disease. A working rule was to defer such cases till at least five years after operation; if then there was no sign of recurrence and other factors were favourable, to recommend acceptance with a debt (lien) varying in amount with the age of proposer, etc.

Assuming that the large majority of all cases of non-purulent pleurisy were tuberculous in nature, a positive history in a proposer was obviously of great importance, as pointed out by Dr. Hector Mackenzie in a paper to the society in 1897. A working rule was to put a debt on every case of pleurisy (not complicating frank pneumonia or other specific diseases) occurring within five years of proposal. If the attack occurred more than five years ago, accept at ordinary rates provided no other unfavourable factor was disclosed.

With regard to (*e*), if, as the Midhurst and other experiences indicate, it were accepted that the mortality rate in cases of apparently "arrested" phthisis approached the normal after six or seven years, then it was reasonable to assume that cases of this nature selected by careful medical examination might be accepted as reasonably good risks, say, five years after treatment had resulted in arrest.

The problem in all cases with a history of tuberculous infection was to protect the company or society from a risk which was heavy in the first few years and then showed a rapid decrease to approximately the normal. For this class of extra risk the contingent debt, decreasing with each year the policy remained in force, afforded an almost ideal mode of treatment, and could be so graded as to render practicable the acceptance of any proposal in which there was a reasonable chance of survival during the early years of assurance.

[2] BRITISH MEDICAL JOURNAL, July 26th, 1919.
[3] *Lancet*, October 4th, 1919.

Reviews.

"THE PRINCIPLES OF GYNAECOLOGY."

IN its third edition, Dr. BLAIR BELL'S well-known book, *The Principles of Gynaecology*,[1] has been thoroughly revised and in some portions rewritten. Much fresh material has been added to the text, and many new illustrations added or substituted. The result is, as might be expected, a book of great interest to all gynaecologists, one full of information not to be found in most other textbooks on the same subject, and one that bears throughout the impress of the author's individual views.

The unusual character of the book becomes at once apparent to the reader, for the first fifteen pages are devoted to a brief review of the evolution of the female genital organs, and the next twenty to their development. Then follows the more usual description of the anatomy of the female pelvic organs, illustrated with many good plates and photomicrographs.

The section on physiology contains references to the physiology of conception and generation, lactation, and uterine contractions, all of which are unusual in such a book, but obviously necessary in relation to the teaching of the principles of gynaecology. In the later parts of the book certain disorders of conception are also included, such as abortion and uterine moles. The author's plea that a consideration of these is essential to a proper understanding of the pathology and differential diagnosis of many more purely gynaecological conditions is unassailable, and if the book is to be self-contained their inclusion s necessary. At the same time the logical conclusion of this plea would mean the inclusion of much more that is usually relegated to textbooks of midwifery, and it is difficult to know just where to draw the line.

Dr. Blair Bell says that objections to the pathological arrangement and classification of gynaecological conditions are unworthy of consideration in the present day. We quite agree. Gynaecological pathology is still in a state of flux in regard to some subjects, and the only hope of progress is to teach the observers of the future to think

[1] *The Principles of Gynaecology*. A Manual for Students and Practitioners. By W. Blair Bell, B.S., M.D.Lond., etc. Third edition. London: Baillière, Tindall, and Cox. 1919. (Roy. 8vo, pp. xvi + 660; 390 figures, 6 coloured plates. 38s. net.)

along true scientific lines. For this same reason it is a little disappointing that in regard to some conditions the author deals so briefly with the pathology. Some little confusion may be caused by the use of novel terms, such as "endometriomyoma" for the condition to which the term "adenomyoma" has become wedded in the most authoritative literature of the subject.

The author has exercised great restraint in dealing with the subjects of the relations of the calcium metabolism to the sexual functions and of the influence of the internal secretory glands. Indeed some disappointment will be felt that he has not said more on subjects to which he has devoted so much work and thought, and with which his name is so closely associated.

The book is fully and beautifully illustrated, although the photomicrographs vary considerably in value and in accuracy of reproduction. We extend very hearty congratulations to both the author and the publishers of this volume, which will help to maintain the high standard of recent gynaecological literature in this country. It is a book which thoughtful and open-minded students of gynaecology cannot afford to overlook.

THE HYPOPHYSIS.

In his large and handsomely printed volume on the physiological action of extracts of the hypophysis[2] Dr. Houssay, who is professor of physiology at the University of Buenos Aires, has published a part of his work upon this important gland, reserving for the future an account of the therapeutic employment of these extracts and also some of his own original work on the subject carried out by other methods of investigation. The book contains twenty chapters, in which the structure of the gland itself and the action of its extractives upon the various organs, processes, and tissues of the body are set out at full length, and the relation of the hypophysis with the suprarenal glands is fully dealt with also. A very full bibliography is added, containing nearly four thousand references, for over forty of which Professor Houssay, with or without the assistance of his pupils, is responsible.

The volume is freely illustrated with charts and tracings of all sorts, admirably reproduced; the text is full of information, and well arranged, but it is rather wordy, and the reader is grateful for the summaries of results and conclusions with which the author too rarely indulges him. To a large extent the book is, of course, a summary of the work of other investigators, amplified by accounts of the author's own experimental observations. It is full of detail, and should be accessible to all physiologists and medical men interested in the pituitary body and its extracts.

HYGIENE AND DISEASE IN PALESTINE.

In a little book entitled *Hygiene and Disease in Palestine*,[3] reprinted from the *Quarterly Statement* of the Palestine Exploration Fund, Dr. Masterman gives an account, based on first-hand knowledge, of the hygienic conditions and diseases of modern Palestine and Syria. Originally written as a popular sketch of the diseases mentioned in the Bible, Field-Marshal Allenby's conquest of Palestine has led to its expansion into an essay on the steps that should be taken for the reform of the sanitary conditions of the Holy Land. The late Professor Alexander Macalister in a short preface pays an emphatic tribute to Dr. Masterman's competence to speak on the matter. Within the compass of thirty-two pages the author gives a clear description of the racial characteristics, habits, and food of the various classes of people, the climate and water supply, the common diseases of Palestine and Syria, the ideas of the natives as to disease, and the conditions of life and health in early times.

The inhabitants of Palestine may be grouped in three classes: the bedawin, who dwell in tents and lead a pastoral life; the fellahin, who till the soil; and the town dwellers, whose occupations are various. According to Dr. Masterman, the popular belief that the bedawin are exceptionally healthy owing to their mode of life does not hold good in regard to the nomads of Palestine. Their clothing of goat skin gives little protection against the weather; the atmosphere of their tents in winter is foul and unwholesome, while they are preyed upon by disease-bearing insects. Malaria and consumption are rife, and epidemics of zymotic disease are not uncommon; the people are fatalists, and in most illnesses the sufferer is uncared for. Though they show a very feeble resistance to acute disease, especially pneumonia, wounds heal with wonderful rapidity. The fellahin, too, live in unhealthy surroundings. Their dwellings swarm with lice, which are looked upon as a protection against disease; the prayer is often heard, "May God not remove them (the lice) from me." The people suffer much from dyspepsia and are particularly liable to intestinal parasites.

The town folk are better lodged than the fellahin. The Oriental Christian knows how to live in reasonable comfort. Milk by long-standing instinct is always boiled. But the sanitary arrangements are very primitive, and the fresh sewage is distributed over the gardens in which the vegetables for the city are grown. The desert tribes are almost free from venereal diseases, but the case is different among the mongrel bedawin in the towns, whose morals are very low. These affections are rare among the Jews and not very often met with in native Christians, but they are fairly common among well-to-do Moslems.

Of the climate Dr. Masterman says that, for those who do not mind a fairly high temperature in summer, the clear pure air and cloudless sunshine make Palestine, taken as a whole, very enjoyable. Compared with Egypt the highlands of Palestine afford a better summer climate for Europeans, though falling far short of some parts of the Lebanon. In considering Palestine as a home for Europeans the prevalence of malaria, tuberculosis and other infectious diseases must be reckoned with. Professor Alexander Macalister, however, says that, given the enforcement of modern sanitary regulations, the Holy Land might become one of the healthiest countries in the Eastern Mediterranean.

An appendix on the water supply of Jerusalem serves to give an idea of the difficulties of this problem which has vexed the minds of administrators since the foundation of the city. Readers of Anatole France's *Procurateur de Judée* will remember the account Pilate gives of the tribulations which his well-meant attempt to furnish the Holy City with a supply of wholesome water brought upon his head from the fanatical Jews. In our own time several offers have been made by English philanthropists to restore the old aqueducts, but their endeavours have been defeated by the obstructiveness and corruption of the Turks. When the British army entered Jerusalem the provision of an adequate water supply was at once taken in hand, and what the Turks had failed to do during the many centuries of their rule, the British engineers accomplished in six months.

The section on diseases in the Old and New Testaments is valuable for the accuracy of the information and the readable style in which it is conveyed. Dr. Masterman's informative essay may be heartily commended to all who are interested in the past and future of the cradle of Christianity.

ITALIAN ARCHIVES OF SURGERY.

We welcome the appearance of the first number of a new surgical periodical, the *Archivio Italiano di Chirurgia*,[4] under the editorship of Professor Donati of Modena. Each volume is to be not less than 600 pages in length, and to be made up of six numbers.

The issue at present before us is of convenient size, well printed, and well illustrated. It contains four articles. The first of these is by the editor, and deals with latent and atypical tetanus in cases of gunshot wound, a condition calling for treatment with antitetanus serum. Professor Donati gives a brief summary of his conclusions at the end of his article, a practice for which all his readers—and particularly those who are not Italians—will be grateful to him, and one that should be made obligatory for all contributors to periodicals such as this. The second article, by Dr. Biancheri, is on local hypertardive post-seral tetanus of slow evolution, with a report of a case; here the condition was cured by a late second

[2] *La Acción Fisiológica de los Extractos Hipofisiarios.* By Dr. Bernardo A. Houssay. Buenos Aires: A. Flaibau. 1918. (Demy 4to, pp. 283 + 75; 167 figures.)

[3] *Hygiene and Disease in Palestine.* By E. W. G. Masterman, M.D., F.R.C.S., D.P.H., Medical Superintendent, Camberwell Infirmary. Palestine Exploration Fund, 2, Hinde Street, Manchester Square, W.1. Price 2s. 9d., post free.

[4] Bologna: L. Cappelli. Annual subscription, Postal Union, 50 fr.

operation, with removal of a foreign body and some infected tissue. Next follows an article by Dr. Fasiani describing his production of antiserums for various anaërobic bacteria met with in cases of gas gangrene; experimentally several of these serums proved valuable, but they do not seem to have been employed in the treatment of gas gangrene in human beings.

The last and longest contribution is by Dr. Gherardo Forni, and contains an account of the experimental study of the effects following removal of one kidney when the remaining kidney is infected with tuberculosis. The animals employed were guinea-pigs and rabbits. Dr. Forni confirms by his experiments the conclusion reached on clinical grounds in the case of human beings—namely, that early tuberculosis in one kidney does not contra-indicate the removal of the other if it is gravely diseased. He finds that such removal actually promotes the arrest of the tuberculous process in the kidney that remains, and is followed also by its hypertrophy.

We congratulate Professor Donati on the first number of his new periodical, and wish him all success in his editorship.

NOTES ON BOOKS.

THE new and revised edition of Dr. BREND'S small *Handbook of Medical Jurisprudence and Toxicology*[5] gives an excellent outline of these subjects, for the use of students and practitioners. It can be carried in the pocket with ease, yet literary form has not been sacrificed to brevity. The print, though small, is good, and the typographical arrangement aids the eye. As with the previous edition, we have looked here and there for certain specified points, and have found that the information given is quite sufficient for a clear understanding of the principles of the matter. Thus we consider that Dr. Brend has again succeeded in his expressed aim, which is to present in a succinct form the essential facts relating to medical jurisprudence without overburdening the text with illustrative cases. In the present edition the chapters on insanity and other abnormal mental states have been rewritten. The work as a whole is strong on the practical side, and the student who has found it useful in preparing for examination will certainly wish to keep it beside him as a guide, both to the many medico-legal perplexities that beset practice, and to the diagnosis and treatment of cases of poisoning.

Dr. HOISHOLT'S authorized translation of Dr. WIMMER'S textbook, entitled *Psychiatric-Neurologic Examination Methods*,[6] gives an excellent and practical account of the way to set about the examination of mental patients of all sorts and ages. It has three chapters: the first shows how the history of the case should be investigated; the second, how the psychic state should be examined; the third and longest chapter deals with the physical examination of the patient. Little is said as to the pathology of the conditions under consideration or their clinical features, and the author is to be congratulated upon his decision to omit such extraneous matter. He has produced a complete and practical handbook that should be of great service to alienists, school doctors, and medical men who have to deal with cases of mental disorder. To medical students also the volume may be recommended, for it contains a well-written account of a subject about which their knowledge is apt to be fragmentary. The American translator has done his work well.

Mr. ANDRÉ L. SIMON has written a gossiping book about *Wine and Spirits*,[7] which in a subtitle he calls "the connoisseur's textbook." He gives as much space to the wines of the Cape, California, and Australia as to those of Portugal, Spain, and France, and about each he has something informing to say. He sketches the mysteries of the different sorts of brandy, passes in review other kinds of spirit, and has chapters on beer and cider. A later chapter on the care of wine contains much sound advice, but the last has a title which may lead to misapprehension, for it is headed "Drink: a Physiological Necessity"; by drink is meant, among other things, water, which is certainly a physiological necessity. But alcohol is not, although Mr. Simon would seem almost to wish us to believe it is. To say that "ethylic alcohol is a food with a specific action upon the nervous system" is true, but may give a false impression. The value of alcohol as a food is negligible; it would be much truer and, in the long run, much more politic from the wine-lover's point of view to say that the vast majority of mankind have hitherto drunk and are still drinking alcoholic beverages because they like them.

Mr. J. A. CROWTHER'S *Manual of Physics*[8] sets out to give a brief, clear, and orderly account of the fundamental facts and principles of physical science for the benefit of students, particularly first year medical students, with no previous knowledge of the subject. Emphasis is laid throughout on the main principles, particularly those of mechanics; details, descriptions of apparatus, and of the way in which experiments should be carried out have been carefully omitted; so, too, details in the numerous diagrams scattered throughout the volume have been cut down to the *ne minus ultra* with a skill comparable to that exercised in another sphere of representation by Phil May, in order that the reader may be able to see at once what is essential in the apparatus or principle under consideration. Examples, some of them with the working out appended, and examination questions are given to illustrate the problems met with in the various departments of physical science. The book is admirably clear throughout, and appears to cover all the ground of the average elementary physics schedule; it should be of great service to students, and we wish it the success it deserves.

GUTTMANN'S *Medizinische Terminologie*[9] is a dictionary of the chief scientific terms, names, eponymic diseases, and the like, that will be encountered by the reader of German medical literature. It does not give equivalents in other languages, except sometimes the Latin term. It is a German medical dictionary for the use of persons acquainted with that language. A good feature is that the author habitually gives some brief biographical note of the person whose name is applied to a disease, structure, or phenomenon.

The *Way of Healing*[10] is a booklet of quotations in prose and verse from all sorts of authors, selected with a view to comforting those who know suffering and are connected in some way with the art of healing. The authoress has made an excellent choice, and the volume may be recommended to those in search of a bedside booklet of the sort, where religion, sentiment, and the cheerful outlook are mainly cultivated.

[5] *A Handbook of Medical Jurisprudence and Toxicology.* For the Use of Students and Practitioners. By W. A. Brend, M.A.Camb., M.D., B.Sc.Lond., of the Inner Temple, Barrister-at-Law. Third edition, revised. London: C. Griffin and Co., Ltd. 1919. (Fcap. 8vo, pp. 330; one plate. 10s. 6d.)

[6] *Psychiatric-Neurologic Examination Methods.* By August Wimmer, Director St. Hans Hospital, Roskilde, near Copenhagen, Denmark. Authorized translation by Andrew W. Hoisholt, M.D., Medical Superintendent, Napa State Hospital. London: Henry Kimpton. 1919. (Demy 8vo, p. 177; 9 figures. 10s. 6d. net.)

[7] *Wine and Spirits: The Connoisseur's Textbook.* By André L. Simon. London: Duckworth and Co. (Demy 8vo, pp. xvii+272. 7s. 6d.)

[8] *A Manual of Physics.* By J. A. Crowther, Sc.D. London: Henry Frowde, and Hodder and Stoughton. 1919. (Cr. 8vo, pp. xx+537; 295 figures. 16s. net.)

[9] *Medizinische Terminologie.* By Walter Guttmann. Berlin and Vienna: Urban and Schwarzenberg. 1919. (Roy. 8vo, pp. 1307; 309 figures. M. 33.)

[10] *Way of Healing.* A Little Book for those who Know Suffering. By Estelle Blyth. Cambridge: W. Heffer and Sons, Ltd. 1919. (3½×6¼, pp. 136. 2s. 6d. net.)

MEDICAL OFFICERS OF INDUSTRIAL SCHOOLS.

IN July, 1918, the Home Secretary appointed a committee to inquire into the conditions of service of officers of reformatory and industrial schools, and to make recommendations as to the number, qualifications, and salaries of the officers required in the several classes of schools. The only medical member was Dr. A. H. Norris, M.C., Chief Inspector of Reformatory and Industrial Schools, who was appointed chairman. The only medical witness was Dr. T. Gordon Kelly, who in his evidence took every opportunity to further the claims of medical officers of reformatory and industrial schools. While all he asked has not been acceded to, he received a sympathetic hearing from the committee, in particular from the chairman, Dr. Norris.

As it is probable that many of the medical officers of these institutions (who have hitherto been very ill paid) may not see the report, we have been asked to give a short account of the clauses dealing with their remuneration and conditions of service. The committee expresses the

opinion that there should be a medical officer for every school.

His duties should include a thorough medical examination of every child as soon as possible after admission and shortly before leaving the school, a quarterly inspection of each child, periodic visits at least weekly, general inspections of the institution from a hygienic point of view, advice as to dietary and general hygiene, the treatment of sick children and resident members of the staff, and the keeping of the medical records. A woman doctor is preferable in girls' schools, if resident within a convenient distance.

With regard to dental care, the committee considers that a qualified dentist should be attached to every school, whose work should include two inspections yearly of each child's teeth, extractions, fillings, advice and instruction on the care of the teeth, and the keeping of a dental register.

With regard to nurses it is pointed out that the schools are residential institutions, and that many of the children are suffering from the effects of early neglect. Hence it is necessary to give special attention to questions of health.

On the staff of every school there should be a woman of sufficient training and experience in nursing to recognize early signs of disease, to give prompt and skilled attention to minor ailments, to render first aid in case of emergency, and to understand and intelligently carry out the directions of the medical officer. Dr. Gordon Kelly, the experienced medical officer of Dexford Industrial School, in giving evidence said: "Some training for the nurse is, in my opinion, absolutely essential. Two years' training in a hospital would meet the case. There is no reason why she should not also undertake the work of assistant matron. She would obviously be far more efficient than an untrained woman in every way, and would also very largely relieve the responsibilities and anxieties of the matron and superintendent."

The committee makes the following recommendation as to the emoluments of medical officers of industrial and reformatory schools:

We consider that the medical officer should be responsible not only for caring for the health of the boys but also for the hygienic conditions of their environment. Taking this consideration into account, we recommend that the salary of a school medical officer should not be less than 10s. per head of the number of children in the school; this to be exclusive of the cost of medicine.

THE WELFARE OF THE BLIND.

The Departmental Committee on the Welfare of the Blind, which reported in July, 1917, recommended the establishment in the Local Government Board of a special department whose function should be the general care and supervision of the blind and the appointment of an Advisory Committee of persons associated with the care of the blind. Such a committee was accordingly appointed in December, 1917, and its first report (for the period ended March 31st, 1919) has been published by the Ministry of Health.[1] The existing voluntary agencies for the welfare of the blind have been registered where their objects and activities met the standard set for such agencies. Three conditions had to be complied with: (1) Properly constituted committee of management, (2) properly audited accounts, (3) trade union rates of pay. The list will be revised annually, and the public are invited to limit their subscriptions to agencies on this list.

The deficiency of the census of 1911 in the enumeration of the blind has been met by an inquiry through public bodies. A register formed on the replies thereto shows a total of 25,840 blind persons in England and Wales. It is thought that when omissions are made up the total will be 30,000. A fourth of the blind live in the northern counties, Lancashire giving a high proportion. Next come London and the home counties. Inquiry was made into the work of the blind, and it was found that the unemployable group (11,895) is the largest, being 46 per cent. of the total enumerated. This class represents the real crux of the problem of dealing with the blind.

Of blind persons in occupations the largest proportion are engaged in basket and cane work; there are relatively few in outdoor occupations. It was found that a large number of blind children are not attending school, and of these 40.6 per cent. were returned as mentally defective.

A table of the age of onset of blindness shows that 21.4 per cent. were blinded within the first year of life, the majority of them within the first few months. After the first year the incidence is, roughly, 10 per cent. for each decade up to 70 years. The inquiry did not elicit useful information as to the causes of blindness, so far as disease was concerned, owing to the absence of medical opinion. But accidents were found to account for 12.3 per cent. of the total. It is believed that a considerable proportion of these cases of blindness would be prevented if better protection by goggles and the like were provided in certain industries. An analysis of 6,000 returns of eye accidents, received by the Home Office, showed that 51 per cent. were due to chips of metal or grit striking the eye.

Trade union wages do not allow the slow-working blind to gain a living; a scheme for the augmentation of wages has been framed which it is believed will provide an incentive to work and offer no inducement to malingering. During the war there has been ample work for the blind, and measures are to be taken to secure a sufficient diversion of work to keep them employed in normal times. It is reported that an attempt to co-ordinate the London workshops has failed, and that the whole position remains unsatisfactory. Perhaps the grants for workshops adumbrated in the recent regulations of the Ministry of Health will foster the desired co-operation.

The Committee urge the extension of education beyond the age of 16 years, and hope that compulsion would be put on authorities under the Education Act of 1902.

[1] H.M. Stationery Office. To be purchased through any bookseller, price 9d.

THE OLYMPIA MOTOR SHOW.

FEATURES FOR THE MEDICAL MAN.

By H. MASSAC BUIST.

The first post-war Motor Car Show opens at Olympia, London, under the patronage of the King, on Friday, and there was a press view on Thursday. It reveals that in the interval of war the industry, as well as the profession, has had to recast its ideas concerning what can be marketed and bought in the way of a motor vehicle for any sum of money that represented a car classification of sorts six years ago. As the members of the medical profession have not enjoyed 100 per cent., or more, increase of income in common with organized manual labour, the medical man will think of the cars of 1920 that are likely to serve him in much the same way as he did of those of 1913–14, more or less in price groups. The moment he begins so to classify them he realizes what has happened as a result of the war. For instance, for somewhere about £200 he could have got such two-seater light cars as the Singer, the Standard, and so on, while he could have a middle-size car like the Rover for £350; but to-day that is at least the sum he has to pay for the so-called light cars of the types indicated, while a four-seated Rover now costs £750. This is because, from the manufacturers' point of view, money buys less than half the labour and material it used to do, and, of course, all burdens in the way of taxation and rates are up correspondingly. But all this is of little help to the average medical man.

He observes, of course, that credit is due to the average car manufacturer, first, because relatively few have increased the prices of their vehicles in measure at all corresponding to the enhanced price of labour and materials; and, secondly, because though to outward appearance much the same, the average post-war model of any make of repute before the war is really a vastly better vehicle. For instance, the Rover engine, which has now water-cooled valve caps, gives 25 per cent. more power, and is equipped with the highest grade of mechanical engine-starter; the Lucas set, the electric lighting scheme also is by this firm, and makes a strong appeal to the medical man because there are no more or less exposed wires to get injured when the car is cleaned. These details pass through tubes; the perfection of the arrangements for keeping the dust, dirt, and rain out of the lamps, while, nevertheless, rendering it possible in a moment to replace a broken bulb, are praiseworthy in the extreme. Again, the higher speed of the engine renders it possible to lower the gearing for the direct drive, while its extra power enables the second indirect speed gear to be raised, so that the gap between the direct and indirect drive for hill climbing has been largely eliminated. The back axle has also been notably redesigned to deal with the problem of thrust, and the vehicle is supplied with a very complete but simply equipped instrument board.

So it is with the four-cylinder Sunbeam and the Vauxhall. Both machines are war-tested and war-developed; indeed, they have now become rather cars for tourists than for the general practitioner, who does not have occasion to make long individual runs. Those who have will find in these speedier, commodious types vehicles that hold the road well, and climb the hills in time-saving fashion.

Solutions of the Price Problem.

Nevertheless, there is no blinking the fact that, though medical men need cars of such sizes and power, the number of them who can afford £750 and upwards is vastly fewer than the number who could pay £350, or less. Indeed, instead of paying more money for their cars, many medical men find they have less to spend. This point has not been lost sight of by the Rover Company, which has done a bold thing in buying an entirely separate factory for the purpose of running it on the one-model programme concerned with an original type of light car which has been tested for a year, and which aims at giving the most suitable service possible for those whose means are strictly limited. If one announces that this vehicle has a nominal 8 h.p. air-cooled, 2-cylinder engine, the chances are ten to one that lips are pursed and noses turned up, remarks being made to the effect that air-cooled and 2-cylinder engines are out-dated for car service. But if the inquirer will possess himself in patience and go into the matter a little more closely he will find that, at least, it will pay him to ponder the situation.

In an age when a motor bicycle of the first quality is retailed with side-car at £180 any manufacturer who offers a sound proposition in the way of a light car for £230 complete must at least command attention. When he goes further, as does Rover, by reducing the weight of light cars as we knew them before the war by 50 per cent., nobody interested in vehicles of this class can afford to ignore this proposition. Very few light cars made before the war scaled as little as 12 cwt. Completely ready for the road, the Rover weighs 8 cwt. and the engine develops 14 horse-power, so that we have here a very high ratio of power to vehicle weight—nearly 2 h.p. to 1 cwt.—therefore something that is really a light car compared with any pre-war achievement. Such a proposition must be bought, like American cars, precisely as it is standardized, with electric lighting and so forth, deviation being quite impossible. The high ratio of power to weight is a matter of particular importance to the medical man, not merely in hilly districts, but also in towns, because, whether we consider omnibus, train services, or doctors' cars, the key of the whole time-saving idea is acceleration. It is almost unnecessary to point out, too, that the light weight of the small Rover car reduces the tyre and petrol bills, as is very necessary since both commodities cost twice as much as they did before the war.

Vickers's New Motor Policy.

Again, among four-cylinder water-cooled cars we have to note the effects of the process of evolution. For instance, before the war Vickers used to make a series of Wolseley cars, and a Stellite small car designed by the Wolseley Company on extremely original lines, which are apparently now being very carefully studied and, in some points, copied by the motoring industry; but the whole of Vickers's passenger-car business is now consolidated in the Wolseley enterprise, so that the erstwhile Stellite becomes the 10 h.p. post-war Wolseley; it still follows the distinctive constructional features, which, however, have been developed not merely by furnishing an engine starter and a pressed steel frame, because there are now three speeds forward controlled on the gate principle, and the engine has overhead valves and cam shaft, together with special aluminium alloy pistons. It gives 20 h.p. to a vehicle weighing about 12½ cwt. completely ready for the road and capable of a turn of speed up to forty miles an hour, the whole being equipped with either a two or a three seater body scheme. It is a class of car directly appealing to the medical man, in that it gives performance with economy. The main design is so strikingly original that, though it was introduced before the war, it is still as distinctly modern a car as any in the show. Of course, the medical man who wants a larger machine can have the middle-sized Wolseley of 15 nominal h.p., also with an overhead valve four-cylinder engine, the dimensions of which are 80 mm. by 120 mm., against 65 by 95 mm. in the case of the nominal 10 h.p. model, the same distinctive scheme of cantilever springs being employed in both cases for both front and rear suspension. These two models, with the largest, nominal 20 h.p. six-cylinder machine of the same engine dimensions as the nominal 15 h.p. four-cylinder type, constitute the Vickers's post-war car programme, which aims at an output of 20,000 vehicles a year. Here we have big production from the European point of view in combination with a three model programme such as Fiat in Italy and Daimler in this country favour. Of course, it is the experience Wolseley has had in building aircraft engines that has led to the standardization of overhead valve types of high output, but relatively not high crank-shaft revolutions for car service. Here we have one of those makers of sufficient experience to know how to meet the quite different demands of aërial and of road service.

The Car Market in General.

It is not the purpose of these notes to give detailed specifications of cars calculated to be of service to the medical profession. The only practical way to proceed in face of the limited space at disposal and the wealth of material for consideration is to draw up a table of such vehicles, which is here printed. A glance at it is calculated to give the reader a good idea of what is being done in regard to the respective classes of motor vehicles now on the market.

The "Baby" Peugeot of pre-war days is superseded by another version (not, however, shown at Olympia), which is a notable attempt to produce a practical motor vehicle at a low price. I refer to the 6.2 h.p., block-engined, water-cooled, four-cylinder model with three forward speeds and propeller-shaft drive, which really derives in scheme from the belt-driven "Bedelia," which pioneered the whole light-car movement in Europe, because, like it, the post-war "Baby" Peugeot has the seats arranged tandem fashion, so that the wheel-track is a yard wide only, whereas the wheel-base is two and a half yards long, giving the opportunity to the constructor to achieve good riding in combination with light weight and reduction of production costs. This car has a single transverse spring in the front and quarter elliptic springs at the back. The smallest Peugeot shown, however, is the 11 h.p. model.

No Occasion to go without Cars.

Moreover, as illustrating the fact that the great increase of production costs does not necessarily mean that a vast proportion of the members of the medical profession must go without motor cars, attention may be drawn specially to the post-war version of Vickers's Stellite light car—now renamed the "Wolseley Ten"—with its three forward speeds, and to the entry of Fiat, the largest motor manufacturing enterprise in Italy, into the light car business with a 10½ h.p. four-cylinder water-cooled model on more or less conventional car lines. All these strongly contrasted European-built vehicles will be manufactured on what is generally called the mass-production principle, though it is observable that the manufacturer of none of them uses the word, despite the fact that I have named the four biggest manufacturers in the three countries concerned. The fact is, each of them has such a high reputation that he has no need for catch phrases, and each has such a thorough knowledge of his business that he is aware that the most anyone can do in Europe is quite a trifling proposition compared with the scale of post-war motor manufacturing in America.

Some Remarkable Middle Price Cars.

When we move upward in the price scale to the vehicles costing between £300 and £400, it is found that there is a very big range, which, on investigation, prove to be largely established makes of light cars developed, as to power and equipment, some of them to an appreciable extent, as notably the post-war Standard car, which comes at the higher end of this price range. At the higher end, too, we have in the new Willys-Overland car, with entirely original 3-point cantilever rear springing, a contribution from America which will be represented in this country as a one-model programme, the outstanding feature of which is to provide the suspension qualities of a machine of long wheelbase to a chassis of quite ordinary compass.

The original 5-cylinder air-coo'ed Enfield Allday with girder frame, which I described at some length in

CARS OF INTEREST TO MEDICAL MEN AT THE MOTOR SHOW.

Prices from £195 to £625 Complete. Two to Six Cylinder Types.

Stand No.	Car.	No. and Size of Cylinders.	Price of Car.	Accommodation.	Outstanding Features.
105	A. B. C.	2 cyl.; 92 mm. bore × 92 mm. stroke	£195	2-seater	Air-cooled engine; price approximate; fabric disc clutch; bevel drive; four speeds.
68	A. C.	4 cyl.; 69 × 100 mm.	£470	Coupé	Disc clutch; worm drive; three speeds; C.A.V. starter.
68	A. C.	6 cyl.; 56 × 100 mm.	£550	Car complete	First six cylinder light car; price approximate; three speeds; worm drive; C.A.V. starter.
109	Albert	4 cyl.; 68 × 103 mm.	—	4-seater	Four speeds; bevel drive; C.A.V. starter.
96	Angus-Sanderson	4 cyl.; 76 × 127 mm.	£450	4-seater comp'ete	"Mass production" new British car; Lucas starter; slipper pistons; detachable cyl. head.
48	Arrol-Johnston	4 cyl.; 80 × 120 mm.	£625	4-seater	C.A.V. engine starter; plate clutch; bevel drive; full elliptic rear springs.
48	Arrol-Johnston	4 cyl.; 80 × 140 mm.	£600	Chassis	"Victory model"; overhead valves; £700 complete vehicle scaling 13 cwt. only.
54	Austin	4 cyl.; 95 × 127 mm.	£495	5-seater	9,000 yearly output: C.A.V. starter; coupé £595; engine gives 45 h.p.
17	Bean	4 cyl.; 69 × 120 mm.	£450	4-seater	*ex* Perry: "one model programme" car, with helical back axle gear; Smith starter.
18	Beardmore	4 cyl.; 65 × 112 mm.	—	—	New British car by shipbuilding firm; 2 higher power models also exhibited; C.A.V. starter.
42	Belsize	4 cyl.; 90 × 110 mm.	£550	2-seater	Rotax starter; steering column stayed to flywheel casing.
107	Bentley	4 cyl.; 80 × 149 mm.	—	4-seater	C.A.V. starter; helical back axle gear; 4 overhead valves per cylinder.
59	Berliet	4 cyl.; 90 × 130 mm.	£475	Chassis	S.E.V. starter; 33⅓ per cent. import duty to be added to provisional price.
103	Bianchi	4 cyl.; 65 × 1 0 mm.	£535	Chassis	C.A.V. starter; single-plate clutch.
30	Briton	4 cyl.; 63 × 110 mm.	£395	2 seater	Brolt starter; disc clutch; worm drive.
79	Buick	6 cyl.; 86 × 116 mm.	£560	Chassis	Delco starter; multiple disc clutch; helical back axle gear.
66	Calthorpe	4 cyl.; 65 × 95 mm.	£394	4-seater	Brolt starter: Hele Shaw clutch; three forward gears.
115	Calcott	4 cyl.; 69 × 110 mm.	£475	2-3 seater	Lucas starter; larger engine and radiator; stronger gear-box and axle.
8	Citroen	4 cyl.; 65 × 100 mm.	£500	4 seater	New French quantity production car: double quarter elliptic rear springs.
35	Charron-Laycock	4 cyl.; 63 × 100 mm.	£483	2-seater	C.A.V. starter; three forward gears; spiral back axle gear.
99	Chevrolet	4 cyl.; 94 × 102 mm.	£375	4-seater	New U.S.A. car; autolite starter; three forward gears; bevel drive.
20	Cosmos	3 cyl.; 80 × 80 mm.	£210	(Approximate)	New radial air-cooled overhead valves; Adams suspension; no differential; weight 6 cwt.
23	Dawson	4 cyl.; 69 × 120 mm.	£525	4-seater	Lucas starter; three forward gears; spiral back axle drive.
32	Day-Leeds	4 cyl.; 64 × 100 mm	£400	2-seater	T-headed engine: two bearing crank shaft; large diameter valves.
61	De Dion	4 cyl.; 70 × 120 mm.	—	—	De Dion engine starter; four forward gears; cantilever rear springs; aluminium pistons.
93	Deemster	4 cyl.; 62 × 90 mm.	£362	2-seater	Mechanical starter; three forward gears; also long wheel-base; 4-seater; £462.
31	Dort	4 cyl.; 88 × 127 mm.	£450	5-seater	American car; Westinghouse starter; three gears forward. Price provisional.
77	Enfield-Allday	5 cyl.; 68 × 80 mm.	£350	4-seater	Radial air-cooled engine; girder frame; most original car in the Show.
67	Fiat	4 cyl.; 65 × 110 mm.	£530	4-seater	Fiat starter; multiple disc clutch.
3	G. N.	2 cyl.; 84 × 98 mm.	£184	"Standard"	Air cooled 90° engine with outside flywheel; ¾ elliptic springs.
108	Grahame-White	4 cyl.; 64 × 85 mm.	£417	Chassis	New English friction-driven car; price does not include engine starter.
38	Grégoire	4 cyl.; 70 × 130 mm.	£590	Chassis	Delco starter; four gears forward; price provisional and exclusive of tyres.
21	G. W. K....	4 cyl.; 66 × 100 mm.	£275	4-seater	Friction driven car; transmission details redesigned.
55	Hillman...	4 cyl.; 65 × 120 mm.	£435	2-seater	Lucas starter; three forward gears; worm drive; "Speed model" with body £550.
88	Humber...	4 cyl.; 65 × 120 mm.	£480	3-seater	Lucas starter; four forward gears.
121	Little Midland	2 cyl.; 85 × 85 mm.	£205	2-seater	Three forward gears; price exclusive of lighting dynamo; speedometer and tyre on 5th wh.
9	Lagonda	4 cyl.; 67 × 78 mm.	£352	2 seater coupé	C.A.V. starter; three forward gears; worm drive; price provisional.
116	Mercury...	4 cyl.; 64 × 102 mm.	£375	2-seater	Internal expanding clutch; three forward gears; bevel drive.
114	Meteorite	4 cyl.; 66 × 109.5 mm.	£450	3-seater	Three forward gears; bevel drive; price exclusive of speedometer.
25	Morris-Cowley	4 cyl.; 69 × 102 mm.	£315	2-seater	Fabric disc clutch; three forward gears; spiral back axle drive; approximate price.
25	Morris-Oxford	4 cyl.; 69 × 102 mm.	£390	4-seater	Lucas starter; fabric disc clutch; three speeds; spiral drive; price approximate.
10	Oakland...	6 cyl.; 71 × 121 mm.	£550	5-seater	Overhead valves; Remy starter: three forward speeds; bevel back axle drive.
40	Overland	4 cyl.; 86 × 102 mm.	£395	5-seater	Autolite starter; single plate clutch; spiral back axle drive; novel 3-point cantilever springs.
80	Palladium	2 cyl.; 89 × 107 mm.	£300	4-seater	Friction driven car; price does not include engine starter.
97	Peugeot	4 cyl.; 66 × 105 mm.	£470	4-seater	Smith starter; multiple disc clutch; four gears forward; worm back axle drive.
46	Phoenix...	4 cyl.; 69 × 100 mm.	£425	3-seater	C.A.V. starter; three forward gears; worm back axle drive.
53	Renault	4 cyl.; 75 × 120 mm.	£425	Chassis	S.E.V. starter; three forward gears; bevel back axle drive.
112	Riley	4 cyl.; 65.8 × 110 mm.	£490	4-seater	Rotax starter; aluminium pistons; four forward gears; price exclusive of Klaxon horn.
63	Rover	2 cyl.; 85 × 88 mm.	£230	2-seater	14 h.p. air-cooled horizontally opposed cylinders; cantilever back and front springs.
3	Ruston-Hornsby	4 cyl.; 80 × 130 mm.	£600	5-seater	New British car; C.A.V. starter; Marles steering gear; gearbox on back axle.
31	Scripps-Booth	4 cyl.; 93 × 100 mm.	£550	3-seater	Remy starter; three forward speeds; bevel drive.
65	Singer	4 cyl.; 63 × 88 mm.	£400	2-seater	Rotax starter; three forward gears; coupé £500 complete.
36	Standard	4 cyl.; 62 × 110 mm.	£425	2-seater	Brolt starter; 20 mm. longer stroke; three forward gears; coupé £525 complete.
101	Star	4 cyl.; 80 × 150 mm.	£550	Chassis	Brolt starter; disc clutch; four forward gears; bevel drive; price provisional.
50	Swift	4 cyl.; 69 × 130 mm.	£375	2-seater	C.A.V. starter; four forward gears; bevel drive.
81	Thor	4 cyl.; 79 × 115 mm.	£350	2-seater	Electric starter; dry plate clutch; three forward gears; bevel drive.
28	Vermorel	4 cyl.; 74 × 130 mm.	—	4-seater	Rhone starter; four forward gears; bevel drive.
100	Vinot	4 cyl.; 73 × 130 mm.	£580	Chassis	Dyneto starter; four forward gears; bevel drive.
41	Vulcan	4 cyl.; 68 × 120 mm.	£525	4-seater	Smith starter; plate clutch; four forward gears; bevel drive.
113	Waverley	4 cyl.; 76 × 127 mm.	£575	4-seater	Smith starter; leather cone clutch; three forward gears; bevel drive.
24	Wilton	4 cyl.; 69 × 100 mm.	£425	4-seater	Lucas starter; disc clutch; three forward gears; worm drive.
84	Wolseley	4 cyl.; 65 × 95 mm.	£500	3-seater	Ex-Stellite; overhead valves and camshaft; tapered channel section frame; B.L.I.C. starter.
84	Wolseley	4 cyl; 80 × 130 mm.	£800	4-seater	B.L.I.C. starter; overhead valves; cantilever back and front springs.
33	Zephyr...	4 cyl.; 69 × 130 mm.	£450	4-seater	Smith starter; four forward gears; worm drive; price exclusive of fifth tyre.

these columns earlier in the year, materialized at this stand, is perhaps the most original vehicle staged.

In the price class between £400 and £500 we have new British propositions in the Angus-Sanderson and in the Bean (*ex* Perry) and the Ruston-Hornsby cars, of which details are given in the table; also the post-war Austin one-model programme, the chassis lines of which are somewhat reminiscent of American practice and the refinement of which is notable. The nominal 20 h.p. Austin four-cylinder engine gives 45 h.p. on the brake; the hand-controlled brakes operate on the back wheels, and the gear change is on the driver's left hand. This is a car available with four-seater coupé body for £595, and it must be regarded among the class of larger cars for medical men. Therefore, judged even by pre-war standards of costs, it is a remarkably cheap vehicle in face of the equipment. The scheme aims at an output of thirty-five machines a day, and is, therefore, like the Wolseley, a very important contribution by the British industry to the price problem. In this category, too, the French "mass-production" proposition, the new Citroen car, with herring-bone back axle gear, is, happily, to be seen at the Show.

Some High-Powered Cars.

Because a certain number of medical men have occasion for large, luxurious, and fast cars development in this field may be reviewed briefly. Rolls Royce and Sunbeam standardize their six-cylinder machines with side-valve engines; Daimlers, Minerva, Panhard, and Piccard-Pictet, with sleeve-valve engines; Peugeot (six-cylinder model), with a novel cuff-valve engine; Hispano Suiza, Farman, and Gnôme et Rhône, as well as Armstrong-Siddeley, Lanchester, Napier, and Straker-Squire, with overhead valve engines. (The smallest six-cylinder vehicle, of course, is the overhead valve A.C. light car.) Notable changes in the Rolls-Royce scheme are an electrical engine starter that works through the gearbox, an entirely new form of cantilever rear spring composed of very few instead of many leaves, and a lighter "livelier" engine. The Napier is a monobloc six-cylinder engine which gives 50 per cent. more power than the pre-war one—80 to 90 h.p.—yet the chassis, which is vastly stronger and more completely equipped, weighs at least 2½ cwt. lighter and provides such a rigid platform for mounting the coachwork that hundredweights can be saved in the construction of the body. This car has been designed purely for luxury performance entirely regardless of cost, whereby the chassis price is £1,750 against £1,575 for the Rolls-Royce and £1,500 for the Lanchester chassis. The Napier programme aims at an output of about 500 vehicles this season.

By contrast the absorption of the Siddeley-Deasy Company by Armstrong-Whitworth has resulted in that old-established house leaving the Coventry concern to do all its passenger-car production on a one-model programme schemed on a basis of 5,000 vehicles a year, in consequence of which the completely equipped 60 h.p. Armstrong-Siddeley chassis, with mechanical engine-starter and so forth, retails at £720 without coachwork. In the face of the prices at which most chassis are being marketed there should be a big field for the new Armstrong-Siddeley car, for it appears to be practically without a rival in price in the powerful six-cylinder class.

In reviewing powerful and luxurious vehicles, too, we may not lose sight of the Talbot-Darracq eight-cylinder model of very neat design which, like the Cadillac, has side by side valves, and Delco apparatus for starting the engine, for ignition and for car lighting. In the twelve cylinder Lancia Italy sends an altogether remarkable design. This block engine is only 9 in. wide and 2 ft. 4 in. long, being, therefore, in effect a vertical twelve-cylinder, though actually it is not so.

The Problem of Deliveries.

It is natural that a feeling of irritation should be abroad concerning the failure of promises to give deliveries. In this connexion there is at least a prospect that medical men will really be able to secure delivery of cars within a matter of months; but no idea is more ill founded than the quite remarkably widespread notion that the British motor industry as a whole is singular in having failed to perform according to programme. Neither the French, the Italian, nor the Belgian industries have done any better than our own this year; yet those industries have had nothing like the labour and kindred troubles to hinder their output. Moreover, though our situation was to be greatly relieved by importations of American cars, we must not let grow a spirit of prejudice or complaint against either the British or Continental manufacturers as being a set of incompetents by comparison with the Americans, whose deliveries to us have practically ceased for the time being by reason of the labour troubles in the U.S.A.

Investigation shows that, though the American motor industry has been slightly disturbed by the war, it has also been helped to an unprecedented extent by it. Yet it is no less behind with deliveries than our own, as may be judged from the fact that, whereas 100,000 cars placed on the British market would adequately satisfy demand in this country, last August America was one million and a half cars behind her home demand, and it is anticipated that the situation will have become worse to the extent of at least half a million more cars by the end of the year. What we must have in mind when according blame or praise to various countries is that America's intention to aid us in the present crisis is a mere policy of trade and enterprise, and is totally unrelated to a problem of her having produced, or failed to produce, cars. Relative to her facilities, certainly she has made no better showing this year than either the British or Continental industries; therefore, it is not fair, nor patriotic, to spread a spirit of complaint against those industries merely because, to establish an export business, the American industry is pleased to let us have cars now at the expense of Americans who want delivery of them in the United States.

A Not Unsatisfactory Situation.

Perhaps if our Government and public had the same average of enlightenment that obtains in the New World we should have been even more starved for cars than we have been, because we should have exported all this year's production. In the mean season, American cars were expected to be brought over by the thousand, but the strike trouble has intervened and held up projects; nevertheless, many new makes will be put on the market, though very few such are figured at the Show owing to the lack of accommodation. There is, however, the four-cylinder Chereolet, introduced by the firm of F. S. Bennett, and the Chandler, by Messrs. H. G. Burford.

When the prices of the cars on the market this year are considered, it is found on examination that the British industry offers value second to none in the world. For example, what American or Continental made car of comparable power, accommodation, and performance to the British 20 h.p. Austin is offered at £495? Even if we take cars of entirely novel schemes that have been evolved during or since the war, can the nominal 10 h.p. five-cylinder, air-cooled, radial-engined, girder-framed Enfield-Allday, completely ready for the road for £350, be surpassed by anything hailing from abroad?

On the other hand, we must not live in a fool's paradise and imagine that the British industry has got the foreign ones well in hand. The American industry is not yet offering cars as cheaply as it could and will be able to do in spite of the Exchange situation and the current high shipping rates. The fact is there is no need for it to lower the prices below what are being asked at the moment, because it can dispose of all the cars it can send over to retail at those prices. Therefore there is no occasion to reduce profits at the moment, and make trading conditions harder hereafter by causing a tariff to be set up permanently and, possibly, to a higher extent than that in force to-day.

While in the main there is reason to expect that cars will really be coming out of our own and foreign works in increasingly rapid numbers from now onwards, nevertheless we may not ignore the fact that the full effects of the coal strikes and of the moulders' strikes on motor-vehicle manufacturing have not been felt by the native industry yet, and that if the Government allows any further troubles of this sort to develop the situation will become critical. It is not merely that our own car production will be adversely affected; those who are apt to speak disparagingly concerning what our native industry has not done this year are not even aware that it has supplied vast numbers of crank shafts and other engine and chassis parts to the Continental industry. Many a foreign-built car staged at the recent Salon in Paris could not have been produced except for the enterprise of the British industry this year.

British Medical Journal.

SATURDAY, NOVEMBER 8TH, 1919.

WOUNDED NERVES AND FRACTURED FEMURS.

THE medical profession during a great war treats wounds to the best of its ability according to the standard of knowledge of the time. In the course of the war improvements are at first improvised, then specialized, and finally standardized. Not very far back, only a few centuries in the history of war surgery, limbs were amputated without anaesthetics and dressed with boiling oil. No comparison can be made between the treatment then and now. The improvement of methods of transport, the prevention of shock, careful anaesthesia, blood transfusion, and other modern methods have completely revolutionized the treatment of the wounded.

Upon the men who have guided the treatment during any war a great responsibility is laid, for their teaching will determine the treatment which will be carried out in future wars. They lay down a standard of treatment in matters which relatively seldom arise in civil surgery owing to the comparative infrequence of accidents producing lesions so severe as may be caused by gunshot wounds. Sir Robert Jones in an address to the American College of Surgeons, published in this issue, deals with some surgical lessons of the war, and there is nobody better fitted to lay down the principles of military orthopaedic surgery in the future, for he has been the moving spirit in their adoption during the war now happily coming to an end. Some of the principles he enumerates are worthy of special attention. One of these is his statement that when a nerve is concussed but the sheath intact and a response to faradism can be obtained, the nerve should be left untouched. He points out that when operation is necessary, increased length may be obtained for end-to-end suture by alteration of posture. Again he insists that explorations should be made through normal tissues above and below the nerve and not through scar tissue. Bridging the nerve and turning down flaps of nerves he condemns as useless. Of tendon transplantation and re-education of muscles, methods of which he has had long experience, he says that during the war they proved an unqualified success in the case of wounds of the musculo-spiral and posterior interosseous nerves. One of the most interesting passages of the address is that in which he discusses the prognosis for different nerves. The musculo-spiral, he says, makes a good recovery, but the intrinsic muscles of the hand after ulnar paralysis do badly, and there is loss of the finer movements of the hand. The sciatic makes a surprisingly good recovery, as also the upper part of the brachial plexus.

The war has given exceptional opportunities for the study of compound fractures. In 1917 Sir Robert Jones described gunshot injuries of the femur as "the tragedy of the war." Sir Henry Gray in 1916 stated that the mortality from these fractures accounted for 80 per cent. of the deaths occurring in wounded men on their way to the casualty clearing stations, or in those units. In 1918 Sir Anthony Bowlby said that the mortality in field ambulances and in casualty clearing stations had been reduced to 20 per cent. This dramatic change was brought about by discarding the Liston splint in favour of the Thomas, and by improved treatment of shock. Towards the end of the war the average shortening in 300 cases was only half an inch. This great improvement was mainly due to the use of the ice-tong calliper splint. In 97 cases which were treated at the Liverpool Military Surgical Centre the shortening was less than five-eighths of an inch. These results were brought about by the co-operation of many surgeons and the combination of their ideas. From a beginning of 250 beds at Liverpool the number increased to 25,000, spread over Great Britain and Ireland. Men specialized in fractured femurs, and the results of their combined ingenuity was that the best form of calliper splint, the best way to use it, and the best kind of bed were devised. It was found that the length of the limb rather than the gap between the bones was the matter that required special attention, and it was established that the calliper walking splint should be used for after-treatment. Bone grafting proved to be of no value. Experience of malunited fractures showed that no operation should be performed for several months after the sinus had healed.

A very interesting account of the subject is given in the recent book of Pearson and Drummond[1]; they tell the story of the gradual advance of knowledge in this branch of surgery, how the old ideas were dropped and new ideas taken up and perfected, how the long Liston was replaced by the Thomas splint, the calliper splint improved, the "anti-aircraft" position developed, and the walking calliper splint devised and perfected. A minimum of shortening was one result, and the prevention of stiff joints another. What thousands of deformities could have been avoided had we known at the commencement of the war what we know to-day! Pearson and Drummond lay stress on the importance of the primary operation, on the value of accurate *x*-ray pictures taken at once, and on the valuable guidance that can be obtained by ascertaining the type of missile. The modern teaching is that all wounds, with the possible exception of bullet wounds, should be excised in order to prevent gas gangrene. Esquillectomy leaves such large gaps that it is better to wait and do sequestrotomy later if necessary. Secondary haemorrhage can be prevented by a good initial operation with adequate drainage, taking care that neither displaced fragments nor drainage tubes are left in contact with the main vessels. Following the suggestion of Sir Henry Gray, the use of the Thomas splint and the collection of the cases into special femur wards produced great good. More than this, the orderlies were so well trained that in the field ambulances they were able to put on a Thomas splint with Tapson's sole clip and extension in four minutes. Good splinting is of the utmost importance for transport.

The advance made and the results obtained in cases of fractured femur provide one of the most interesting chapters in the history of war surgery. It is to be hoped that the knowledge will not be allowed to lapse, but that in the next war treatment will commence where it left off in this war. It is to be hoped also that the lessons taught by war experience in this matter in particular will have a permanent influence on civil practice.

[1] *Fractured Femurs: Their Treatment by Calliper Extension.* By Maurice G. Pearson, O.B.E., M.B., B.Sc., F.R.C.S., and J. Drummond, M.D., M.R.C.P.Edin. London: H. Frowde, and Hodder and Stoughton. 1919. (Roy. 8vo. pp. xii + 92: 50 figures. 10s. 6d. net.)

LAËNNEC'S INFLUENCE ON MEDICINE.

The centenary of the publication of Laënnec's *Traité d'auscultation Médiate* has recently been celebrated in his native Brittany. At the foot of the statue at Quimper, erected in 1868 to his memory by the French medical profession, speeches were delivered by a number of distinguished persons. Laënnec is chiefly remembered to-day as the inventor of the stethoscope, and if he had done no more than introduce an instrument of precision into the practice of medicine his name would be deserving of honour. But his fame has other and surer foundations. It may be claimed for him that he was, if not the first, one of the first of the clinical pathologists. He was the successor or contemporary of a distinguished band of men who in France and England devoted much time and thought to morbid anatomy; but like Hunter, though with perhaps a stronger bias towards clinical observation, Laënnec perceived that the material of morbid anatomy, however rich and however rapid its accumulation, could never become a science. Long before the invention of the stethoscope he said that if pathological anatomy "was to become directly and immediately applicable to practical medicine it must be combined with the observations of the symptoms or alterations of function which coincide with each kind of alteration in the organs." This doctrine seems to-day so obvious that we find it not easy to understand that it should ever have been necessary to fight for it, but Dr. Raymond Crawfurd in the Harveian Oration has recently reminded us with how much difficulty even the most acute and original minds free themselves from the domination of authority and the empire of traditional belief.

On the one hand, Laënnec's study of morbid anatomy had been wide and thorough; on the other, he was well acquainted with symptoms to be observed at the bedside, particularly in diseases of the chest, to which he had given special attention; he was in search of a means to bring the two into relation. He saw at once the possibilities of auscultation, and with unfaltering intellectual honesty allowed neither the dogmas of the schools nor his own preconceptions to turn him from the road along which the new method was leading him. The astonishing insight, almost amounting to intuition, with which he worked out the relation of the sounds to the lesions, left little for his successors to add to the almost perfect method embodied in his treatise. The mass of detail the book contained was vivified by enthusiasm; the bent of his mind would have made him at home in the scientific world of to-day. He sought for facts first and theories afterwards, thus reversing the procedure popular among his immediate predecessors. When he received his first teaching appointment as Professor of Medicine in the Collège de France he publicly rejoiced in finding there an atmosphere and a tradition of freedom which gave scope for his uncompromising criticism of the "systems" resting not on observation but on theory, which then still dominated the teaching of medicine.

Laënnec insisted that medicine must be founded on observation, and it is not without significance that he was practically the last physician to occupy the chair; his successors, Magendie, Claude Bernard, and Brown Séquard, resorted to the experimental method, and were physiologists rather than physicians. But this did not mean that the professorship was deflected from its true purpose. Professor Gley, who represented the college at the ceremony at Quimper, made an apt quotation from Claude Bernard's lectures on experimental pathology: "There are not," said Bernard, "two kinds of laws of life, the one ruling the pathological state and the other governing the physiological. No; the two orders of phenomena blend, and there are regions where pathology cannot be distinguished from physiology. In short, there is only one physiology, which is the analysis of the phenomena of life under all the forms in which they may be manifested." It is well to recall these words of a great master, though the lesson they contain is, perhaps, less needed to-day than it was a decade ago.

GENERAL MEDICAL COUNCIL ELECTION.

Voting papers in connexion with the election of direct representatives of the medical profession upon the General Medical Council are being posted to-day, Friday, November 7th, to all practitioners registered with addresses in England and Wales, Scotland, or Ireland. In consequence of the war, however, it is probable that many medical men and women have left the addresses at which they dwelt in 1914, and have not notified the Registrar of their present whereabouts. Any medical practitioner whose registered address is within the United Kingdom, and who has not received a voting paper, should communicate at once with the Registrar of the Branch Council at which he originally registered, whether he wishes to take part in the election or not. This is important, in order to avoid the risk of removal of his name from the *Medical Register*, under Section 14 of the Medical Act, 1858. The address of the Registrar of the General Council and the English Branch Council is 44, Hallam Street, Portland Place, London, W.1; that of the Registrar of the Scottish Branch Council is 20, Queen's Street, Edinburgh; and of the Registrar of the Irish Branch Council, 35, Dawson Street, Dublin.

CIVIL EMPLOYMENT OF RETIRED OFFICERS.

The Retired Officers (Civil Employment) Act, 1919, is one which will interest many members of the medical profession. By the Superannuation Act, 1887, the Treasury was empowered to make rules as to the conditions on which any civil employment of profit under certain public departments might be accepted or held by a person in receipt of the pay, half-pay or retired pay of officers in the naval or land forces, and rules were accordingly made by the Treasury under that Act. These rules, after defining the words "civil employment of profit under a public department" as meaning any employment the profits of which were derived from the consolidated funds, money voted by Parliament, land or hereditary revenue of the Crown, the Mercantile Marine Fund, or any other funds to be subsequently specified which were administered by a Government department, went on to provide that no such person should accept or hold such employment without the consent of the Admiralty or War Department. They further provided that where the annual amount of non-effective pay together with the profits of the employment exceeded the sum of £400 a year, such profits should be subject to an abatement of an amount not less than 10 per cent. as determined by the Treasury in consultation with the department concerned. A very large number of retired officers have been employed by the State during the past five years in one capacity and another, and the Act of 1887, to which we refer, has undoubtedly worked a great injustice in such cases. Under the Retired Officers (Civil Employment) Act, 1919, the Treasury "may by order revoke or modify the rules made under the Superannuation Act, 1887, in so far as those rules provide for a deduction being made from the civil emoluments of any person who has received or is receiving retired pay or pension in respect of past services as an officer in His Majesty's forces," and, further, "the provisions of any order made" by the Treasury under the Act "shall take effect as from such date or dates.

whether before or after the passing of this Act, as may be specified in the order." The Treasury has not yet published any order under the new Act, but there is apparently reason to hope that the order, when it is made, will be retrospective, and that some part, at any rate, of the money "docked" from the profits of the civil employment of these retired officers under the Act of 1887 may be refunded.

MOTOR AMBULANCES FOR HOME SERVICE.

The scheme of the Joint Committee of the British Red Cross Society and the Order of St. John, to provide motor ambulances for the transport of patients in rural districts, has made considerable progress since we last referred to the matter. The Home Service Ambulance Committee has been in communication with all county directors. At the end of October applications for 296 ambulances had been received and approved, and 171 had been delivered. They have been fairly distributed over the whole country and have been dispatched as quickly as they became available, but both the delivery of cars at home and the receipt of cars from France were much delayed by the railway strike. The number of ambulances in garage for distribution fell short by fifty-one of the number the Committee had promised to allot, and it has therefore been determined to buy fifty-five Ford chassis and to make and fit suitable ambulance bodies. The Committee was encouraged to take this step because experience gained during the six months the scheme has been in operation showed that in many districts a light ambulance would be not only more economical than the heavier types used in the armies, but often more useful. At the instance of Sir Anthony Bowlby the Treasury has sanctioned the free issue of 3,000 Thomas arm splints and as many leg splints for use with the ambulances. As soon as the complete outfit has been received the splints will be at the disposal of county directors; printed instructions will be issued with each set. Reports received from county directors on the working of forty-two ambulances that have been in service for a full three months show that the number of cases carried was 1,097, an average of 26 to each ambulance. The number of miles covered was 18,516, an average of 17 miles for each patient. This shows that the desire of the Committee so to space out the ambulance stations that the distance to be covered should not exceed about fifteen miles is being approximately fulfilled. The reports furnish evidence that the service is appreciated throughout the country and is meeting a real want.

PHYSICAL EDUCATION.

A letter under the title "A C3 Population" was published in *The Times* of November 1st, asserting the urgent need of a more comprehensive and better organized system of physical education. It was signed by nine eminent members of the medical profession, and was of the nature of a manifesto. It called for:

1. The formation under the Ministry of Health of a Directorate of Physical Education, which will evolve a definite system; and which will advise, when asked, any volunteer movements connected with the improvement of the physique of the people.
2. A National Council of Physical Education composed of representatives appointed by those associations whose work and influence would warrant their inclusion.
3. The establishment of a peripheral organization on a territorial basis with the requisite power, money, and personnel to maintain an organized system.

All will hope to see the inadequate playgrounds, of which the letter speaks, made adequate in number and extent, so that the leisure after a day's labour may not be "unprofitable and disease-provoking"; but Dr. Brackenbury, writing as the vice-president of the Association of Education Committees, has pointed out that by an arrangement between the Ministries of Education and Health the medical inspection and treatment of school children has been practically retained in the hands of the Ministry of Education. He goes on to show that even if eventually the work reverts to the health authority, to be carried out, by officers who would be medical practitioners, under the health authority, physical education must necessarily be organized in intimate connexion with the Board of Education and the local education authorities; for physical education, being an essential part of education in general, cannot be separated from other branches. Its effect upon mental and intellectual development is as important as upon physical, and in almost every case the instructors must be members of the teaching profession, and not of the medical, though the latter should have advisory or consultative functions. He points out, further, that in continuation schools and classes it is quite common for the education authority to require attendance for physical exercise as a condition of admission to other subjects, and that organized games are now a useful part of the work of such authorities. We are disposed to think, as Dr. Brackenbury suggests, that the signatories of the manifesto are hardly aware of what has already been done in these respects, and we also find it not easy to understand what sort of an organized system under a director of physical education they contemplate. The German system of gymnastic clubs has never been really popular in this country; but, on the other hand, the British boy and young man, with exceptions few enough to be ignored, will play outdoor games whenever the chance is given to him. Dr. A. C. Farquharson, M.P., in another letter in *The Times* has expressed the opinion that the proposal, stripped of its plausibilities, is that a department of the State shall establish and maintain—which would come to mean compel—a system of physical exercise or education to be applied during the leisure hours of the people. He contends that long hours of labour, with consequent absence of leisure, insufficient wages, and bad sanitary surroundings, both in home and workshop, due to intensive industrialism, have been the main causes of the physical deterioration of the people, and that now these evils are being remedied a compulsory encroachment upon the hours of leisure should not be enforced by statute. The object in view is, he rightly says, a very fitting one for voluntary effort, education and propaganda, but not one which the State should be asked to enforce by compulsion. The favourite game of the British boy and young man, at any rate in winter, when games are most needed, is, we would suppose, football, and we are under the impression that a quite sufficient "peripheral organization" would be provided by local football clubs if their opportunities of obtaining grounds for the game were increased. Unfortunately it is a game which requires a good deal of ground, and there is no doubt a risk that for want of space young people may tend to become spectators rather than participants.

NAVAL HYGIENE.

With the removal of the Censor's ban information of various kinds about the war is becoming public property, and though, judging from previous campaigns and the enormously greater material accumulated since 1914, it must be a long time before the official medical histories appear, many isolated records, especially those under the aegis of the Medical Research Committee, have been published. The vast majority of these naturally concern the army, but in a recent congressional address at Newcastle-on-Tyne Sir Robert Hill,[1] Director-General of the Medical Department of the Admiralty, gives an interesting account of naval hygiene. The necessarily limited allowance of sleeping and working space in a ship is no doubt the reason why in the navies of many countries tuberculosis is one of the chief causes of invaliding and discharge. Ventilation is therefore a most important but by no means easy problem; three essential points must be taken into consideration: (*a*) the circulation of a sufficient

[1] *Journ. Roy. Sanitary Institute*, 1919, xl.

amount of fresh air; (*b*) its distribution without the creation of draughts; and (*c*) the maintenance of an equable temperature. A committee appointed in 1912 to consider the ventilation of ships reported before the war, and improvements were carried out both then and during the course of hostilities. In the Royal Navy, in which a cubic space of 200 feet, with at least 20 inches between the hammock hooks, is the minimum for the sleeping accommodation, the ratio per 1,000 for tuberculosis was 2.83 in 1909, 1.93 in 1913, 2.12 in 1917, and 2.77 in 1918; but it is considered that, but for various factors incident to war, such as relaxation of the examination of the personnel on entry and the rejoining of large numbers of pensioners and previously invalided men, the incidence of tuberculosis between 1914 and 1918 would have shown a great fall. A detailed account of the heating and water supply of the ships is given, and it is satisfactory to learn that under the present system of storage and distribution dangerous pollution of drinking water is very rare, the most frequent cause of contamination being the escape of oil fuel. During the two waves of influenza in 1918 there were 15,694 cases among the 90,000 officers and men of the Grand Fleet, there being almost two-thirds of the cases in the earlier wave, in which, however, the percentage of pulmonary complication was only 0.4 as compared with 6.8 in the autumn outbreak, the corresponding death rate being 0.03 and 2.8 per cent. respectively. Among 556 cases of cerebro-spinal fever in the navy from August 1st, 1914, to December 31st, 1918, there were 64, or 11.5 per cent., in sea-going ships, 41 being in the Grand Fleet or attached squadrons, but in only three instances did more than one case arise in the same ship. The methods of combating venereal disease in the navy consist in educational lectures and pamphlets with full information about syphilis and gonorrhœa, ablution rooms, and for immediate prophylaxis calomel cream 33 per cent., in a lanolin case, for intra- and extra-urethral use. Sir Robert Hill adds: "Until the civil population is offered facilities for obtaining some form of direct prophylaxis, I do not see how venereal disease can be reduced to the ideal minimum in the navy, though undoubtedly the measures now taken under the Act (1917) will render the task easier of accomplishment."

CLEAN MILK.

In a pamphlet entitled "A study of two types of commercial milk,"[1] Freear, Buckley, and Stenhouse Williams relate the results of an inquiry made at the Research Institute in Dairying, University College, Reading. Having cited the loss due to dirty production of average milk as sold in our big cities, the authors proceed to compare this average milk of commerce with a milk in which every care has been taken to ensure cleanly production. For the production of clean milk there are two great essentials—money and knowledge. It is estimated that a charge of 3d. a gallon over and above the market price would meet the increased cost of elaborate apparatus and more careful methods. The loss on milk condemned after its arrival would, however, be avoided, so that the extra expenditure at the source would be recouped. The other essential, knowledge, or the desire to possess it, seems to present a problem far more difficult of solution, especially as the pecuniary advantage to the milkers would not at present be obvious, but the authors themselves appear to be not without hope. Those who live in the country will appreciate the difficulties of the small farmer, as opposed to those of the large concerns, especially in a matter of this kind. The bacteriological observations show that the main difference between milks lies in the fact of contamination at the outset; where this contamination occurs no subsequent cooling or other manipulations can remedy or in any way change matters. The various alterations in temperature, length of journey, and so on, are details of comparatively minor importance. The paper shows a commendable and painstaking study, and adds another to the long list of pleas for a clean milk supply, and it further shows the possibility that the proposed scheme, besides being hygienically desirable, may be found also commercially sound.

[1] *A Study of Two Types of Commercial Milk.* By Kathleen Freear, Wilfred Buckley, and R. Stenhouse Williams. Cambridge: University Press. 1919. (Cr. 4to, pp. 32; six charts.)

RABIES IN ALGERIA.

Rabies is common in Algeria, where, on account of geographical and other considerations, prophylactic measures cannot be applied. Every village, every oasis, harbours its dozens or its hundreds of savage, half-wild dogs, and even in large towns there are always a large number of ownerless marauders very prone to infection. Algiers is provided with a well-equipped Institut Pasteur, with Dr. Edmont Sargent at its head, and to it all suspicious cases are sent. According to the annual report for 1918, just issued, 1,907 persons underwent the antirabic treatment during that year. Of this number 15 did not follow the full course of treatment, the dog having been found to be healthy, and 12 others discontinued the treatment. Six cases proved fatal, but in only one of these did death take place more than fifteen days after the date of the bite, consequently in only one could the treatment be said to have failed. This gives a mortality of 0.05 per cent. On looking into the figures we find that of 56 persons bitten by animals found by inoculation to be rabid, one died; of 498 bitten by animals diagnosed by veterinary surgeons to be rabid, 2 died while of 1,208 persons bitten by dogs merely suspected to be rabid, 3 died. The spinal cords of 47 animals were received at the laboratory, and of these 18 yielded positive results on examination, 20 were negative, and 9 were too decomposed for proper observation. Of the rabid animals, 108 were dogs, 71 cats, 5 jackals, 4 horses, 1 mule, 8 asses, 1 calf, 1 gazelle, 1 pig, 1 rabbit, and 4 rats. Further, in two cases of hydrophobia in man the patients contaminated persons in attendance upon them who had to receive a course of antirabic treatment.

REMUNERATION OF PUBLIC VACCINATORS.

The Minister of Health has issued a memorandum to boards of guardians in England and Wales stating that he is of opinion that in present circumstances the minimum fees of 2s. 6d. and 3s. 6d. prescribed for primary vaccinations performed at the homes of the persons vaccinated are inadequate. He has accordingly issued a new order, to come into force on December 1st, 1919, increasing the minimum fee to 5s. It does not affect public vaccinators who are already receiving the new minimum or a higher fee, and it is to be understood that the sum of 5s. is only a minimum, and that it is open to the guardians, if they so desire, to pay a higher fee, subject to the Minister's approval. The Minister's approval is not required if the guardians decide to pay the minimum of 5s.

COLONIAL MEDICAL SERVICES.

Viscount Milner, G.C.B., Secretary of State for the Colonies, has appointed a committee to consider the position of the medical services of the various colonies and dependencies, with a view to maintaining and increasing the supply of candidates, and to securing contentment within the service; and to consider whether the principle of assimilating the medical service of neighbouring colonies may usefully be extended, and, if so, how far and by what means. The members of the committee are: Chairman, Sir Walter Egerton, K.C.M.G., late Governor of British Guiana and recently Chairman of the Pool (Petroleum Supplies) Board; Lieut.-Colonel Sir Harry Verney, Bart., D.S.O., Surgeon Rear-Admiral Sir Humphry D. Rolleston, K.C.B., M.D., F.R.C.P., Major-General Sir W. B. Leishman, K.C.M.G., C.B., F.R.C.P., F.R.S., Lieut.-Colonel Sir James Kingston Fowler, K.C.V.O., M.D., F.R.C.P., Mr. T. Hood, C.M.G., M.R.C.S., L.R.C.P., Director of the Medical and

Sanitary Service, Nigeria; Mr. A. Fiddian, Principal Clerk, Colonial Office, with Mr. J. E. W. Flood of the Colonial Office, as secretary.

We are glad to learn that Sir William Osler, who contracted a severe chill on a long motor journey during the railway strike, is making satisfactory progress towards recovery.

Medical Notes in Parliament.

National Health Insurance: Receipts and Expenditure.—In reply to Mr. Godfrey Locker-Lampson, Dr. Addison, on October 29th, presented the following return of receipts and expenditure for National Insurance for the year 1918, as regards England and Wales. The document was as under:

***Return showing Estimated Receipts and Expenditure** (in round figures) under the National Health Insurance Acts in the year 1918, for England and Wales.*

Receipts.	£	£
Cash at Bank of England, January 1st, 1918		530,000
Cash in hand of approved societies and Insurance Committees, January 1st, 1918		890 000
Contributions of employers and employed persons		16,250,000
Interest and sundry receipts		2,350,000
Exchequer—		
Medical and sanatorium benefit	2.767,000	
Sickness, disablement, and maternity benefits ...	1.556,000	
Sickness benefit (Women's Equalization Fund for 1917 and 1918)	445,000	
Sickness benefit (recoupment, invalided soldiers)	322.000	
Administration expenses of approved societies and Insurance Committees	687.000	
Central administration expenses	393,000	
		6,170,000
		£25,200,000

Expenditure.	£	£
Medical benefit		4,840,000
Sanatorium benefit		731,000
Sickness and disablement benefits		5,600.000
Maternity benefit		886,000
Administration expenses—		
Approved societies	1,944,000	
Insurance Committees	278 000	
Central administration	412,000	
		2,634,000
Sums invested—		
By National Debt Commissioners	3.737,000	
By Approved Societies	6,110,000	
		9,847,000
Cash at Bank of England, December 31st, 1918 ...		802,000
Cash in hands of approved societies and Insurance Committees, December 31st, 1918		860,000
		£26,200,000

Expenditure in connexion with National Health Insurance is also incurred by other Government departments, the estimated amount of which in 1918 was as follows:

	£
Office accommodation (buildings, furniture, fuel and light, etc.)	30,400
Rates	3,900
Stationery and printing...	53,700
Audit	73,900
Revenue departments, Customs and Excise ...	2,400
,, ,, Post Office	100,700
	£265,000

The Special Grant to Insurance Practitioners.—Mr. Hayday asked the Minister of Health, on October 29th, whether he was aware that approved medical associations had not participated in the special grant to panel practitioners, although such institutions were approved by the National Insurance Commission for the provision of medical benefits to insured persons, and whether he would state the reason for this discrimination. Dr. Addison replied that no such discrimination had been made as was suggested in the question. Every effort had been made by the department to obtain from the Friendly Society Medical Alliance (representing these institutions) certain facts and figures which were necessary for establishing and measuring the amounts that might properly be payable to the institutions, and without which no such payment could be calculated. But the Alliance had so far declined to give that information.

Medical Services in Mesopotamia.—Mr. Hirst asked the Secretary for War, on October 29th, whether since May over 50,000 troops had been involved in the campaign against the Kurds; whether both British and Indian troops were on sealed rations for a period of weeks; whether the medical arrangements were inadequate; whether he was aware that no appliances were provided, and that the men sick with fever were strapped into panniers on each side of a mule during the July heat; whether the hospital at Salamaniah was a collection of tents, where men lay on the ground with one ground sheet and one blanket; whether cases of whisky and of beer were sent by convoy one hundred miles from the railhead long before even tents were provided for the troops; and whether he would call urgent inquiries to be made. Mr. Forster, in a written reply, said that the answer to the first part of the question was in the negative. It was quite possible that both British and Indian troops were on field rations for short periods, as this was quite usual in similar circumstances. There was no reason to think that the medical arrangements were inadequate. As regards the sick being carried on mules, he was afraid that this was probably the only alternative to walking in this difficult country. There was no hospital at Salamaniah. What Mr. Hirst probably referred to was the tenth subdivision of the field ambulance, which formed the best accommodation possible during the initial stages of an advance. While he had no information on the subject, he thought it very improbable that cases of spirit were forwarded to the front in advance of the Expeditionary Force canteens. He was not in a position to give further details without reference to Mesopotamia. If, however, Mr. Hirst had evidence of matters which, on further consideration, he thought called for further inquiry, they would receive careful attention.

Influenza Precautions.—Dr. Addison, replying to Major Davies, stated on October 29th, that a standing committee of medical officers, including the Secretary of the Medical Research Committee, to deal with all questions concerning influenza had been in existence for some time. The Committee informed him that though there had naturally been an autumnal rise in the incidence of respiratory diseases, the notifications and mortality return did not at present indicate any recurrence of epidemic influenza. He proposed at an early date to issue a circular advising sanitary authorities and the public as to the preventive and other measures which should be taken this winter in regard to influenza, so far as present knowledge enabled advice to be given.

Staffs of New Ministries.—Mr. Baldwin, in the House of Commons, on October 29th, gave, in reply to Mr. G. Balfour, figures of the staffs employed by the two new Ministries of Health and Transport. After deducting the staffs employed in July, 1914, in departments absorbed by the Ministries the numbers were 1,942 (including over 1,700 engaged in temporary work) employed in the Ministry of Health, and 260 employed in the Ministry of Transport. The annual rates of expenditure on the staffs of the Ministries, after deducting the annual rates of expenditure in July, 1914, were £640,000 for the Ministry of Health, and £116,400 for the Ministry of Transport. Mr. Baldwin added that the figures of expenditure covered not only the cost of additional staff, as compared with July, 1914, but also the increases by way of war bonus to the staff of the absorbed department.

Milk for Mothers and Children.—The Paymaster-General, in reply to a question put by Major E. Wood to the Minister of Health, has stated in a written answer that the number of local authorities in England and Wales which had reported on the steps they had taken to provide milk for expectant and nursing mothers and children under 5 years of age was 200, or approximately 60 per cent. of the authorities undertaking maternity and child welfare schemes Such authorities number 24 metropolitan borough councils, 33 county councils, 79 county borough councils, and 144 town and district councils. About 40 of the local authorities replied that no action was necessary in their district, and a number of others had furnished no information. Comprehensive schemes for the supply of milk had been adopted in 50 cases, but, as a general rule, the provision was limited to a supply of milk (including dried and condensed milk) to mothers and children attending infant welfare centres. In a number of cases health visitors were instructed to report the need of milk among children, and midwives were asked to supply information regarding expectant mothers who were not getting sufficient food.

Milk in Devastated Regions.—Replying to Lieutenant Commander Kenworthy, Mr. Harmsworth, on November 4th, said it was true there was an acute shortage of milk for children and invalids in the devastated areas of France and Belgium. The matter was one which solely concerned the French and Belgium Governments, but the Agricultural Relief of the Allies Committee had supplied from Great Britain a certain quantity of livestock to the areas of the Somme, the Marne, and the Meuse in France, and to the Yser valley in Belgium.

Rats and Mice Bill.—The bill introduced by Sir Arthur Boscawen (Secretary to the Board of Agriculture) to secure action by individuals and local authorities for the destruction of rats and mice was passed through the Commons on November 3rd, and now awaits progress in the Upper House. An occupier of land who fails to take necessary and reasonably practical steps for destruction of rats or mice on his land, or to prevent such land being infested with rats and mice, is made liable, on conviction, to a fine of £5 when no notice has been served upon him, or to a maximum penalty of £20 in cases in which notice has been served upon him by the local authority to require him to deal with the matter. Power is given to a local authority, when not satisfied that an occupier is doing what should be done, to enter his land within a time to be specified in the notice. It is also laid down that if a local authority refuses to act, the Board of Agriculture can act in its place at the occupier's expense. In the course of the debate Sir A. Boscawen said it was probable that if we had protected our stocks from depredations we could have saved between thirty and forty millions sterling of the bread subsidy of fifty millions now being spent. Lieut.-Colonel Raw said that the danger had accumulated and increased during the last five years of war. It was serious, not only from the enormous amount of destruction of foods urgently required, but because bubonic plague is spread from rats to human beings.

THE OPENING OF ENHAM VILLAGE CENTRE.

On October 29th the Enham Village Centre for disabled ex-service men was opened by the Minister of Pensions, Sir Laming Worthington Evans. The estate is large—over a thousand acres—and situated in a healthy part of Hampshire, with three hamlets upon it, five farms, a post office, village hall, cottages, and smithy. It is about three miles distant from Andover, the nearest town and station. Most of the men live at Enham Place, the largest of the houses. This is furnished with ample recreation rooms, including a billiard room. A sub-centre for one hundred extra residents has now been opened at Littlecote. A village institute is in course of erection, and there is a men's club at the village hall, where bowls, billiards, and tennis are played.

The centre has been organized on a voluntary basis to assist the State in the great work of restoring the disabled man and fitting him for a civil life. Residents at Enham will receive from the Government their full treatment and training allowance, and when their course is completed, every effort will be made to place them advantageously in permanent occupations.

With restorative treatment is combined the training that will best enable each man to overcome his disablement and allow him to lead a useful life. Special facilities are offered for training in agriculture and horticulture and in industries and handicrafts suitable for village life, including wood carving, furniture making, electrical installation, watch making, boot making, ladies' tailoring, poultry, fruit, and ordinary farming. The occupation will be carefully chosen with a view to each individual's previous experience, home conditions, capacities, and tastes. The whole process of re-education and training is conducted under medical care, and is graded from week to week, according to the bodily and mental powers of each individual. After admission to the centre there is a short period of probation. All men who are considered suitable after probation will be accepted for the full course of treatment and training. The following kinds of cases are most likely to benefit at Enham: (1) Men suffering from the effects of shell shock, neurasthenia, and depression, for whom the encouraging and home-like influences of the centre are more suited than institutional treatment. (2) Convalescent surgical cases. (3) Men crippled by wounds or by stiff or wasted joints or muscles or amputations. (4) Men recovering from malaria or other fevers, and delicate men for whom a country life is prescribed. Incurable cases, that is to say, men who cannot reasonably be expected to recover any capacity for work, will not be received. The village centre is designed to enable injured men to make the best use of their reduced powers. The rules are few and reasonable, and the men themselves will have a voice in the direction and management of the place. It is the particular desire of the council that as cottages become available, married men with their families should be received at the centre. For this purpose a careful selection will be made, from time to time, from those men who have proved their suitability and made good progress in re-education and recovery.

The centre has actually been at work for five months now, and over one hundred men have been admitted. There is a long waiting list, and the committee hopes to have accommodation for at least five hundred men within a short time. In the new medical block all forms of hydrotherapeutic treatment will be carried out, including whirlpool baths, running water baths, as well as radiant heat, ionization, and electrical treatment. All kinds of cases, especially neurasthenic, rheumatic, and orthopaedic, will be received for treatment.

The Minister of Pensions, in formally opening the centre, expressed the hope and belief that it would be the means of restoring many a disabled soldier to health again, and enable them once more to be in a position not only to earn their living, but also to enjoy the amenities of life.

A pamphlet has been issued by the Assurance Medical Society containing the report of a discussion, initiated by Mr. W. McAdam Eccles, on war injuries as affecting the question of life insurance. It is a problem with which medical officers of life assurance companies are now being confronted. Mr. McAdam Eccles dealt briefly with various categories of injuries, and the discussion that followed, to which several well known insurance authorities contributed, should be of considerable value to those who may be called upon to advise assurance companies.

According to statistics published by the *Secolo* of Milan, 800,000 deaths occurred in Italy from influenza in 1918, a figure which is 60 per cent. higher than the total Italian mortality in the war.

Scotland.

GENERAL MEDICAL COUNCIL ELECTION.

Dr. Norman Walker.

In pursuance of his candidature for re-election as direct representative of the profession in Scotland on the General Medical Council, Dr. Norman Walker addressed a meeting at Edinburgh on October 22nd. Professor Lorrain Smith, who was in the chair, read letters from Professor Lovell Gulland and Sir Clifford Allbutt, expressing the earnest hope that Dr. Walker would be re-elected. Sir Clifford Allbutt wrote that after sitting for some ten years on the Council with Dr. Walker his respect for his sound and calm judgement and wide knowledge of affairs had steadily grown.

Dr. Norman Walker in the first part of his address dealt with the constitution and functions of the General Medical Council, and pointed out that it was concerned with preserving a sufficient standard of medical education and keeping the *Register*. It had no power to stop practice by unqualified persons. He then dealt with the recommendations of the special committee of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, whose report on the teaching of obstetrics and gynaecology to medical students and graduates in London had been published in full in the British Medical Journal of August 30th and September 13th. He observed that the report called attention to certain defects and made a number of suggestions which would be of the greatest interest to the Medical Council. Dealing next with the report of the Edinburgh Pathological Club, he said that, although the proposals were drastic, none of them ran counter to the views of the General Medical Council. Finally, he dealt with the report of the National Board of Medical Examiners of the United States of America, and pointed out that the standard of medical education suggested was high—namely, two years of college education in chemistry, biology, and physics, and a foreign language, followed by four years of medical education proper in a Class A medical school, and that by one year of work either as a resident in a hospital or laboratory, with a final examination of a very high standard. Dr. Walker then referred to some observations made by Dr. Duncan on the previous evening, a matter which he dealt with more fully at the meeting in Glasgow, reported below.

Dr. Norman Walker addressed a meeting of the profession in Glasgow on October 30th. Sir Hector Cameron, who was in the chair, said that his experiences of affairs had taught him that when a representative was carrying out his duties satisfactorily it was wise to continue him. He had himself been a member of the General Medical Council for fifteen years, and knew that it was not easy to command its attention. The position Dr. Norman Walker now held in the Council was proof that he had made good his position.

Dr. Walker, in the earlier part of his address, dealt with the subject of medical education. He pointed out that Scotland in 1895 had added 565 names to the *Medical Register*, but in 1918 only 289, and it was probable that the addition in 1919 would be even lower. Against this was the fact that the number of students registered was by far the largest on record; it would, however, be at least five years before they reached the *Register*. Those who survived what would undoubtedly be severer tests would find more opportunities for organized work. Those who had served in the army, as nearly all young men had, saw that with all its disadvantages—and perhaps some had not seen its disadvantages so clearly as the older men—there were great advantages in organized work. He referred to Sir George Newman's memorandum on the practice of preventive medicine, and said that the Scottish Board of Health no doubt had something of the same general nature in its mind, but he hoped would strike out on its own lines. The formation of the Board of Health for Scotland was most important to the medical profession, but the full benefit of the new era could not be enjoyed unless there were a more complete alliance of the various medical interests in Scotland. The interests of the public and medical practitioners, of consultants, of the universities, and of the medical corporations were all essentially

the same, and it was desirable that there should be some body which could discuss the various points of view and deal authoritatively with the Board of Health. The nucleus of such a body existed in the Scottish Ministry of Health Committee, in joining which no body sacrificed its individuality.

Dr. Walker then said he was bound to take up the glove which Dr. Ebenezer Duncan had thrown down on October 21st when speaking in Edinburgh. Dr. Duncan then said that the profession had recently "been put under the control of the Board of Health, and that the Act establishing it had been rushed through without the medical profession being consulted." Speaking the next day, he (Dr. Walker) said he had read these words with amazement.

About a year ago he received a communication from the Scottish Office suggesting that as the proposals for the establishment of a Ministry of Health Bill were being considered by a committee in England, it was only fair that the profession in Scotland should receive equal treatment. After a good deal of negotiating between different parties a committee was got together, constituted as follows:

Members of the Scottish Committee of the British Medical Association	17
Representatives of Corporations	6
Representatives of Universities	4
Members of the Scottish Branch of the General Medical Council	9
The Society of Medical Officers of Health ...	2
Lady member	1
Total	39

These doctors came from all over Scotland, and one of the representatives of the Royal Faculty of Physicians and Surgeons of Glasgow was Dr. Ebenezer Duncan.

The first meeting was held on January 4th, 1919, when the Committee was constituted; the second on February 8th, when Sir Donald MacAlister was elected Chairman on the motion of the President of the Royal College of Physicians, Edinburgh, seconded by the President of the Royal Faculty of Physicians and Surgeons, Glasgow. Mr. Hodsdon proposed and Dr. Ebenezer Duncan seconded the election of certain gentlemen as vice-chairmen. At that meeting the Ministry of Health Bill, which was then a joint one for England and Scotland, was considered, and the meeting was adjourned for the further consideration of the clauses applying to Scotland.

The adjourned meeting was held in the Hall of the Royal Faculty of Physicians and Surgeons of Glasgow on February 21st, and the minute showed that Dr. Ebenezer Duncan was present and took part in the proceedings. At that meeting, on the motion of Professor Glaister, it was left to the Business Subcommittee to formulate the various resolutions of the Committee and forward them to the authorities concerned—Dr. Addison, Mr. Munro, and the Lord President of the Privy Council.

The Subcommittee met on April 5th. Letters were received from the Lord President and from the Scottish Office in reply to communications. The meeting then considered the bill, which by this time had been separated from the English bill, in order to ascertain to what extent effect had been given to the recommendations of the Committee; a memorandum was drawn up and circulated to all the members, with an intimation that a meeting would be held at an early date, and a request to members of the Committee desiring to do so to bring forward specific proposals for the amendment of the bill. A meeting was accordingly held in the Royal College of Surgeons, Edinburgh, on May 17th, and at all meetings Dr. Ebenezer Duncan was present.

Dr. Walker asked those present whether they thought he was justified when he said he read with amazement Dr. Duncan's protest that the medical profession had never been consulted. Dr. Duncan had taken up one point: he had ignored the much larger one, and had concentrated upon the statement that one particular recommendation of the Committee had not been accepted. At one of its meetings the Committee unanimously agreed that it ought to be provided in the bill that not less than one-third of the members of the board should be registered medical practitioners. Five drafts of the bill had been before the Committee: they were dated November 7th, 1918; February 17th, 1919; March 27th, 1919; April 9th, 1919; and May 15th, 1919; and the Act was dated June 3rd, 1919. In the first draft, where Scotland was dealt with in the English bill, it was proposed that the Board should consist of nine members: one of them was required to be a doctor and to possess the qualification of D.P.H. In the Ministry of Health Bill of February 17th—still the bill common to both countries—Clause 9, Section 3, line 20, said:

"The number of members (other than *ex officio* members) shall at no time exceed six," and the requirement of the D.P.H. still stood.

In the first Scottish Board of Health Bill, dated March 27th, the Committee's recommendation that there should be no restriction on the qualifications of medical men disappeared, as the Committee had recommended it should; and Clause 3 (2) repeated the words, namely: "The number of members (other than *ex officio* members) shall at no time exceed six," and in that form the clause appears in the Act. It came before the Committee in that form, and in that form it was considered by the Subcommittee and was dealt with in the memorandum. The reference to it was as follows: "Originally (Clause 3) the Board was to include all the members of the Local Government Board (six; three being *ex officio*), certain Scottish Insurance Commissioners, one registered medical practitioner possessing a D.P.H., and an advocate of seven years' standing. The number of members might thus be nine. The Parliamentary Under Secretary might not be a member of the Board.

"Now the Board consists of the President, Vice-President, and six others, including the three appointed members of the Local Government Board, and two Insurance Commissioners. The six must at all times include two registered medical practitioners (without special diploma), one or more women, and an advocate or law agent of ten years' standing.

"The President is the Secretary for Scotland, the Vice-President is the Parliamentary Under Secretary, and in the absence of both, the President may designate a member to be chairman. Thus, in the absence of the President and Vice-President, say, in attendance on Parliament, the Chairman and five other members constitute the Board and of these six two at least must be medical practitioners."

That memorandum was circulated to all members, and he never heard any suggestion that the two medical members were not the third of the Board which the Committee had in its mind, and honestly he could not at first understand Dr. Duncan's point that the Secretary for Scotland had not kept faith with them. He could hardly refrain from pointing out that the memorandum concluded with a request to members to bring forward specific proposals for further amendment of the bill, and at the meeting on May 17th one such proposal was brought forward by Dr. John Stevens; it was a proposal with which he personally agreed, and ran: "That even if it involves an addition to the membership of the Board there should be two members representing the clinical side of medicine."

He did not remember any one in the discussion raising the point that the third had not been conceded. The Committee, however, did not adopt that resolution, but the following resolution became the unanimous finding of the meeting:

> That it be represented to the Secretary for Scotland that in making future appointments to the Scottish Board of Health, it is of great importance that at least one of its members should be a practitioner who has had an extensive experience in the general practice of medicine.

He did not enjoy personal controversy, but in this case he felt bound to take up the challenge, and to repeat that the Secretary for Scotland had dealt with the Committee in absolute fairness, and he regretted very much that Dr. Duncan should have made a further statement that "the Government had added insult to injury by putting at the head of the Board one of their political hacks who knew nothing about medicine at all. He had been one of the Lords of the Treasury under Mr. Lloyd George, and he supposed he had to get a post."

At this time, when the country was in difficulty, when great problems of reconstruction in which the medical profession was enormously concerned were being considered, he did not think that that was the spirit which ought to be shown by one who aspired to be the direct representative of the medical profession in Scotland. At any rate, it was not the spirit in which he (Dr. Walker) proposed to approach the problems of reconstruction; he did not believe it was the spirit in which the profession in Scotland proposed to approach them, and he asked them to endorse that view by re-electing him to the Council.

Dr. Ebenezer Duncan.

In a letter addressed to the *Scotsman* on October 25th, Dr. Ebenezer Duncan replied to Dr. Walker's speech. Dr. Duncan in this letter states that the Committee unanimously recommended that not less than one-third of the members of the Board of Health should be registered

medical practitioners, but the Board as finally constituted consisted of eight members, only two of whom were medical members, both being Government officials, and both for many years before their appointment connected exclusively with preventive medicine. It was hoped that the vice-chairman to be chosen by the Secretary of State, who was the nominal head of the Board, would be a trained medical man, but the vice-chairman nominated, who would be the real head of the Board, was a politician with no training in public health or curative medicine. In support of his statement that the bill was rushed through Parliament, Dr. Duncan said that he was a member of a deputation from the Royal Faculty of Physicians and Surgeons which went to London on April 8th—one week after the bill in its final form was published; but even at that early date it was found to be too late to obtain amendments. Dr. Duncan reiterated his opinion that the Board of Health did not represent, as it should, the educated views of the universities and medical corporations of Scotland, and that the opinions of the three thousand general practitioners had been ignored.

Ireland.

General Medical Council Election.

We have received from Dr. J. C. McWalter of Dublin a note stating that he has been asked to offer himself as a candidate for election as direct representative of Ireland on the General Medical Council as representing the Irish doctors who have served in the R.A.M.C. "I am," he writes, "in sympathy with the reforms advocated by the British Medical Association and the Irish Medical Association." We understand that the retiring member, Dr. Leonard Kidd, of Enniskillen, is offering himself for re-election.

University College, Cork.

A committee has been formed at University College, Cork, to invite subscriptions from past and present members of the governing body, the teaching staff, officers and students, in order to present Sir Bertram Windle on his retirement from the office of president with his portrait. Any balance of the fund will be appropriated to other purposes which may commemorate his happy connexion with the college. Subscriptions should be sent to the Honorary Treasurers, University College, Cork. A few weeks ago we indicated briefly the reasons that had induced Sir Bertram Windle to resign the position he has held for over fifteen years. During that time he has had the satisfaction of seeing the buildings of the college nearly doubled in extent and the number of students nearly trebled, while the college has received gifts amounting to over £100,000. The number of students attending the college during the session 1918–19 was 629, as compared with 566 during the previous session. The number of new students in 1918–19 was 172. In discussing the financial position in his annual report he states that it is unsatisfactory, but adds that this disadvantage it shares with practically every educational institution in the three kingdoms. As a result of negotiations conducted by him in London and in Dublin the Government has allocated a sum of money for this year for the purpose of increasing the incomes of the full-term officials and professors of the college. Some time during the present winter the Government commission will visit all the institutions concerned, including University College, Cork, and discuss future expenditure. Sir Bertram speaks very strongly of the necessity for the foundation of a university for Munster. A deputation to urge the claim was received by the Lord Lieutenant, but the Government has announced that it is unwilling to proceed with the matter. This decision, he says, "leaves the College, as it has been in the past, tied hand and foot, and at the mercy of a permanent majority belonging to another college. . . . In such a case real progress is impossible, and partial progress is only possible as the result of an expenditure of time and worry which no person unconnected with the machine can imagine, and no person whatsoever should be called upon to undergo, or could undergo for more than a limited period." Sir Bertram Windle says that he would not have retired had the Government shown itself willing to fall in with the unanimous and oft-expressed wish of the College, both governing body and academic council, and, as he maintains, of the province of Munster, for the establishment of a separate university in Munster. The governing body issued last year a statement in support of this claim, which gave a history of the college in Cork, and met seriatim the objections which have been raised to the establishment of an independent university in Munster. It is shown that the College has secured popular approval in Munster; on its governing body all shades of public opinion are represented and have worked together strenuously with marked success for the last ten years for the good of the College. The number of its students is not too small to justify a university, for Cork at the present time has more students than Belfast had when it was made a university. The College has received financial support from the public, private beneficence having since its foundation supplied a sum not far short of £150,000. With regard to buildings, great advances have been made since the Irish University Act became law; there is now an institute of physics and chemistry affording accommodation which compares favourably with that of any other institute of its kind; the engineering laboratories now make complete provision for testing materials, for hydraulics, and for concrete work; there is now a well equipped, self-contained building for botany, geology, and zoology; and the medical school, which was in a deplorably backward state so far as regards laboratories, has been enlarged by the provision of well equipped physiological laboratories, a pathological department, and an operative surgery department with a museum of instruments. Playing grounds of 15 acres have been acquired, clubs for men and women students built, and administrative offices erected. Finally, the Houan Hostel provides accommodation for nearly fifty men students; it has an endowment of its own but is organically connected with the College. With regard to staffs and subjects taught two entirely new departments have been opened, the first in commerce and the other in dentistry. Further, what is almost a new department for mechanical and electrical engineering has been established in connexion with the Crawford Municipal Technical School. In other departments the staff has been strengthened. The statement lays it down that a federal university can never be a real success.

Ulster Medical Society.

The opening meeting of the winter session was held on the evening of October 30th in the Medical Institute, Belfast; there was a large attendance of members. The retiring president, Dr. James Colville, introduced his successor, Mr. Andrew Fullerton, C.B., C.M.G., F.R.C.S.I. A hearty vote of thanks to the retiring president, proposed by Mr. Fullerton and seconded by Dr. Morrow, was passed with acclamation.

Mr. Fullerton then gave his presidential address on "Recent work on shock and haemorrhage." Before opening his subject he referred to the loss by death of one honorary Fellow of the society, Dr. Robert Esler of London, and of one Member, Dr. Logan, Ballynure, co. Antrim. He also made some observations on the reorganization of the profession, the raising of medical fees, and other matters of general interest, and then passed to the main subject of his address.

Shock and Haemorrhage.

After reviewing the work done during the war in France, America, and England on shock, he said the following conclusions appeared to be justified in the present state of knowledge:

1. Shock may be divided into primary and secondary shock. Primary shock, the nature of which is, as yet, undefined, comes on immediately after injury. Secondary shock, a later development, comes on gradually, the degree depending to some extent on the care the injured man receives during transit. The theory that shock is due to exhaustion of the vasomotor centre has not been supported by recent investigations. The same may be said of the theories of suprarenal exhaustion, cardiac failure, acapnia, and acidosis. There is evidence in favour of its being produced in certain cases by absorption of metabolites from injured tissue, especially muscle.

2. Low blood pressure is one of the outstanding features of shock. This is due to loss of blood by haemorrhage, to loss of blood by stagnation and concentration in the capillary area, or to a combination of these two conditions.

Contributory factors in the production of shock are cold, deprivation of fluid, hunger, pain, anxiety, fear, rage, fatigue, insomnia, and depressing conditions of all kinds, amongst which must be included anaesthesia.

3. *Preventive Treatment of Shock.*—In the injuries of civil life much may be done to prevent the onset of shock by gentle handling, immediate immobilization of injured parts, care in transit, and warmth. Thomas's leg and arm splints should be kept in readiness and skilled first aid should be available on the spot. To prevent the onset of shock during and after operative procedures much may also be done. Before operation we should endeavour to secure sleep for our patient, allay his pain, anxiety, and fear, promote as far as possible a calm and restful state of mind, and avoid starvation, undue purgation, and deprivation of fluids. The patient who is violently purged, starved for hours before operation, deprived of fluids, and strapped down before anaesthesia has been induced has received a poor preparation for the ordeal he is to undergo. Added to this, struggling under the anaesthetic, rough handling of the tissues, "carnivorous" surgery, inefficient haemostasis, undue exposure, and prolongation of the operation all tend to initiate shock. It is sound practice to give salines by the rectum or subcutaneously before or during the operation.

4. *Treatment of the Established Condition.*—This should be prompt to avoid the damage likely to occur to important organs deprived of sufficient blood supply by a continuance of the low blood pressure of shock. Recognizing that toxic products from injured tissue, especially muscle, can produce shock, all dead and damaged tissue should be removed as early as possible. The main object in the treatment of shock is to restore the blood pressure and thereby ensure an adequate supply of blood to the various organs of the body, especially the bulbar centres. The most successful agents are *warmth* and *rest*. The administration of stimulants found very little favour in France. Strychnine has long been abandoned in the treatment of shock. Vaso-constrictors have failed to establish a reputation in the treatment of shock. The increase in peripheral resistance produced by their administration may deprive the organs of an adequate supply of blood though the pressure in the main arteries may rise. Glucose solutions are unnecessary, as blood sugar has been found to be above the normal in wound shock.

Treatment directed to increasing the Blood Volume.—Fluids by mouth or rectum may suffice in the milder degrees of shock. Subcutaneous saline has proved disappointing in the graver degrees of shock.

Intravenous Injections.—The following were used:

1. Simple isotonic solutions produces only a temporary rise of pressure. Within half an hour or so the blood pressure falls to or below its original level.
2. Hypertonic saline produces effects hardly less transient than those of isotonic solutions.
3. Calcium salts, when added to solutions for intravenous injections, do not lessen the tendency of the fluid injected to escape.
4. Alkaline injections have been abandoned. Their use was based on the idea that acidosis was a potent factor in shock.
5. Injection of solutions which do not leave the blood vessels. The most suitable solution appears to be Bayliss's gum saline solution. This is a 6 to 7 per cent. solution of gum arabic in 0.9 per cent. sodium chloride. It has the viscosity of blood and the osmotic pressure of its colloids. It does not leave the blood vessels. It has had an extensive trial in France, and the reports are favourable. Bayliss finds that in animals, even when severe haemorrhage has taken place, restoration may be produced by gum saline solution alone. In cases of severe haemorrhage it may be used with blood to economize the latter. It must be used early and before the low blood pressure has had time to cause a loss of excitability of the bulbar centres.

Blood Transfusion.—It was not till 1916 that blood transfusion was used to any great extent by British surgeons in France. The arrival of the American surgeons in 1917 gave a fillip to its use, and in the later stages of the war it had a great vogue.

Methods.

1. *Direct Method.*—Bazett, Dryer, and Fullerton used the direct method early in 1916. This method requires more skill than the indirect methods and the quantity of blood transfused is not easily determined.

2. *Indirect Methods.*—(*a*) Paraffined tubes of 400 to 500 c.cm. capacity. Those of Vincent and Kimpton were much used in France. The Canadians had used Kimpton's tubes early in the war, and in 1917 the American surgeons popularized tubes of the Vincent pattern. (*b*) Syringe methods. Record syringes with Lindemann's cannulae were popularized in France by Bruce Robertson and were much used, especially by some of the Canadian surgeons. (*c*) Citrated blood transfusion. This was used early in the war by Archibald and other surgeons. Later both British and American surgeons used it extensively. (*d*) Preserved blood. The use of preserved blood corpuscles is based on the work of Rous and Turner, published in 1916. Blood from a donor is received into a mixture of dextrose and citrate of sodium solutions which is isotonic, and the blood corpuscles allowed to settle. In four of five days the blood is available for use. The supernatant fluid is drawn off and the sediment of corpuscles is mixed with a 2.5 per cent. solution of gelatin in normal saline. Gum saline solution may be used instead of the gelatin solution. The method was used in France by Oswald H. Robertson of the United States army and others. Good results were obtained by its use. The preserved blood corpuscles could be kept in good condition for several weeks and could be transported considerable distances without damage to the red cells.

In the later stages of the war tests of compatibility were always carried out. Moss's classification of donors was used. Roger Lee of the United States army showed that it was only necessary to test the serum of the recipient against the cells of the donor. The serum of the donor was diluted in the blood of the recipient, and did not cause agglutination or haemolysis of the latter's corpuscles, which were in addition protected by their own plasma.

Mr. Fullerton concluded by illustrating the use of blood transfusion in civil practice by giving particulars of several cases in which he had employed the method.

Professor Lindsay proposed and Professor Sinclair, C.B., seconded a very warm vote of thanks, which was carried with acclamation. Tea was kindly provided by the president at the close of the meeting.

England and Wales.

The National Hospital for the Paralysed and Epileptic.

The National Hospital for the Paralysed and Epileptic in Queen Square, London, commemorated the sixtieth anniversary of its foundation on November 3rd. The proceedings were informal except for a service in the chapel (which was ordained from the first year of the institution to be a feature of its Founders' Day), when an address was delivered by the Rev. J. V. Macmillan, vicar of Kew. Afterwards the visitors, among whom was H.R.H. the Duchess of Albany, made a tour of the wards, which at present contain 170 beds, and of the electrical and physical exercise departments, and the neighbouring schools of massage and electrical treatment, which last are run in conjunction with University College Hospital. The annexe, also in Queen Square, for the reception of cases sent by the Ministry of Pensions, was thrown open to inspection. Here 32 beds are assigned to discharged sailors and soldiers suffering from diseases of the nervous system, and it was stated that with the extension at Clapham Park and the contemplated extension at Maidenhead, both of which also are under the Ministry of Pensions, the hospital is, or will be, responsible for 114 beds for cases of paralysis, shell shock, and neurasthenia among ex-service men.

Medical Reunion Dinner at Leeds.

At a reunion dinner held under the auspices of the West Riding Local Medical and Panel Committee, at the Queen's Hotel, Leeds, on October 28th, a silver salver was presented to Dr. R. May, of Wakefield, who was chairman of the committee for more than six years. Dr. G. B. Hillman, of Castleford, presided, and made the presentation, referring to Dr. May's valuable and single-hearted services, and the sacrifice of time, energy, and money which had characterized his work for the committee. Dr. May, in his reply, mentioned that more than 200 out of 700 medical men on the panel of the West Riding had served in the Forces during the war, and there were only three appeals. Sir Berkeley Moynihan, who replied to the toast of the guests, speaking of the part played in the war by the medical profession, said that it had displayed more than any other the national virtues of heroism, steadfastness, and courage. After referring to the functions of medicine in the State, and to the establishment of the Ministry of Health, Sir Berkeley Moynihan enlarged upon the disabilities under which general practitioners as a whole had to carry on their work, and the consequent difficulty they experienced in keeping abreast with the latest knowledge and the newer instruments of precision. Whatever was done in the way of further State control must have as a paramount influence

the strengthening of the hand of the general practitioner, and not the robbing of his individual rights in every one of his patients. He declared that Dr. Addison's intentions were precisely those which members of the profession would desire him to have. The policy of the Ministry of Health, with its Advisory Council, was to find out what the general practitioner wanted, and so far as might be possible to give him a free hand in the developments of the future. His great hope was that the Ministry would manage to impress its own methods upon every department of medical practice throughout the country so that doctors would be able to do work which would satisfy their consciences.

India.

SANITATION IN THE UNITED PROVINCES.

THE death rate of the United Provinces in 1918 was the highest on record—82.37 per 1,000, as against a mean of the previous five years amounting to only 33.15. The deaths in 1918 exceeded the number in 1917 by over 2 millions, and the quinquennial average by over 2½ millions. This unprecedented mortality was due to epidemics of cholera, plague, and relapsing fever in the early part of the year, and, beyond all, to the ravages of the influenza epidemic in the autumn. The high birth rate of 1917, which had been surpassed only four times in the preceding thirty-seven years, was not maintained in 1918. It fell to 39.89 per 1,000, a drop of 6.19 on the figures of 1917 and of 5.16 on the average of the previous five years.

The epidemic of cholera was severe, but the Sanitary Commissioner definitely acquits that great pilgrim gathering, the Kambh Mela at Allahabad, of responsibility for the spread of this particular scourge. The medical and sanitary arrangements at the gathering were very complete and efficient, and the disease was certainly not spread from Allahabad by the home-going pilgrims.

Unfavourable climatic conditions were chiefly responsible for the persistence and spread of the epidemic throughout the year. The intense heat of the hot weather months and the failure of the rains undoubtedly led to deficiency in and contamination of many water supplies. Owing to the shortage of bleaching powder the required quantities could not be supplied, and it would accordingly be unfair to draw conclusive inferences regarding the effect of the "cholera scheme" on the incidence of the disease; and the experiment with bleaching powder will be continued; but systematic rat destruction has never given satisfactory results in the United Provinces, as the great mass of the people dislike it, and are passively hostile to it. The general conclusion drawn from past experience of plague preventive measures in the United Provinces is that evacuation of infected dwellings and inoculation are the only measures of any practical value. The people have begun to understand the benefits of evacuation of infected dwellings, and spontaneously carry it out.

The disposal of dead bodies in the recent influenza epidemic was a difficulty. A large number of corpses were thrown into the Ganges and the Jumna and their tributaries.

It is, the Commissioner remarks, always the custom among the poorer classes of Hindus to throw corpses into the rivers, and in times of epidemic many Hindu castes, who normally dispose of the dead bodies by cremation, also thus dispose of them. The disposal of these bodies last year was a matter of the utmost difficulty, but eventually the rivers were cleared of corpses. The most effective way of dealing with the difficulty was found to be the stretching of nets or the placing of fences at intervals across the river beds, boats manned by Dows being stationed at these obstructions to remove the bodies as they floated down and burn or bury them.

So far as is known no particular harm resulted to the public health from the accumulation of dead bodies in the rivers. Filtration at waterworks in large towns was thoroughly effective, and bacterial counts from every filter made regularly once a week showed that the purity of the water supply was absolutely maintained. No useful action can be taken beyond noting what occurred in the recent epidemic, and urging on district and municipal authorities the necessity for taking in future epidemics early steps to erect barriers at intervals across the rivers for the more expeditious disposal of corpses, and to provide free fuel, so as, if possible, to induce the people to burn their dead rather than throw them into the rivers. But there is surely also scope here for the beneficent activity of the educated classes. If those with any influence in their respective communities could use that influence to discourage a practice which certainly detracts from the amenities of existence, if it does not actually endanger human life, there would be less cause for complaint than there was last year regarding the unpleasant sights and odours to be met with on the Ganges and Jumna.

LADY HARDINGE MEDICAL COLLEGE AND HOSPITAL FOR WOMEN AND CHILDREN, DELHI.

This institution was projected in 1912 by the then Vicereine, Lady Hardinge, to commemorate the visit of Her Imperial Majesty Queen Mary to India in 1911. The main purpose of the college was to educate Indian women for the practice of medicine through the agency of women instructors. The training of compounders and nurses was to constitute a subsidiary object of the school. A hospital was to be provided for the treatment of women and children and arrangements were to be carried out to enable patients so disposed to "retain their purdah and caste customs." The college was intended to supply the wants of the whole of India. A report, referring specially to the transactions of the year 1918, has recently been issued, and gives evidence of gratifying success. Lady Hardinge's appeal for funds was promptly and generously responded to by native chiefs and others. Government contributed a handsome annual subscription and scholarships were given by the Dufferin Fund, native states, local governments and authorities, and many native ladies and gentlemen of rank and wealth gave help in money, medals, and prizes. The foundation stone was laid on March 17th, 1914, by Lady Hardinge, and after her lamented death in June of that year it was suggested by the Queen Empress that the institution should bear her name. The college was opened in February, 1916, by Lord Hardinge, and the hospital in 1917 by the present Vicereine, Lady Chelmsford. The outbreak of the war and the epidemic of influenza gave rise to serious difficulties as regards building materials, labour, equipment and staff, but these have been overcome, and now, as demonstrated by the excellent full page photographs which illustrate the report, the arrangements for accommodation, instruction and treatment are very complete, and the working of both college and hospital in full swing. The report of the principal, Dr. Kate A. Platt, who, aided and encouraged by the late Director-General of the Indian Medical Service, Sir Pardey Lukis, has borne the burden of the initiation and development of the institution, indicates good and progressive work. The number of students has grown from 34 to 60. They are of all classes, and 42 out of the 60 are of pure Eastern birth. The course of instruction is up to date, and laboratories have been provided for practical work. The college has been affiliated with the Punjab University, and a respectable proportion of the students who attended the examinations passed. The number of indoor patients treated in the hospital in 1918 was 1,238 and of outdoor 6,206; 387 operations were performed, of which 72 were "major," including 15 abdominal sections. Fifty obstetric cases were treated indoors and 12 attended outdoor; of these 43 were normal and 19 abnormal. It is stated that "several very high-caste ladies have come into the hospital for their confinements." Suitable arrangements for the recreation of the students have been made, and games are encouraged and played with spirit. Altogether the future of the Lady Hardinge College is very promising, and the institution, together with the Dufferin Fund, undoubtedly render a much needed and much appreciated service to the native women of the Indian Empire.

AFGHAN FIELD FORCE.

Statistics of the amount of sickness and the number of wounded in the Afghan Field Force from the daily number of hospital evacuations from the front to the base have been issued. Including gunshot wounds, the rates were: British, 2.8; Indian troops and followers, 1.3.

Battle Casualties, May to August 9th.

	Killed.	Wounded.	Total.
British officers	19	46	65
British other ranks	32	153	185
British total	51	199	250
Indian officers	11	16	27
Indian other ranks	210	634	844
Indian total	221	650	871
Total British and Indians ...	272	849	1,121

Five officers, 13 other ranks British, and 44 other ranks Indian died of wounds. Total British and Indian, 62.

The only occasion on which a high number of wounded—322—had to be dealt with in a few days was between May 15th and 17th in the Khyber line.

Correspondence.

THE R.A.M.C. AS A CAREER.

SIR,—I read the address of Sir John Goodwin on the future of the R.A.M.C. with much pleasure, and, having spent thirty years of my life in the army, strongly advise young medical men to think of it as a career. No doubt it has some disadvantages, but I know the advantages far outweigh all the disadvantages. A man can always find plenty of congenial work if he wishes, and there is ample scope for any specialism.

I particularly advise young men to join now, as the future prospects of the I.M.S., in common with all the European services in India, are so uncertain, that nobody who has been in India of recent years would think of advising any young fellow to think of a career in India if he has an opening elsewhere.—I am, etc.,

October 28th. LATE R.A.M.C.

SIR,—In your leader on the new R.A.M.C. rates of pay and pension, have not certain factors been rather overlooked? A R.A.M.C. officer rises in rank in peace time much more rapidly than does a combatant, and the ratio of lieutenant-colonelcies to lieutenancies among combatants is much lower than the corresponding ratio in the R.A.M.C. It is true of the two brothers you ensample—the elder (or medical) would on entry draw only 1s. a day more than his brother, but in three years' time he would be a captain and his brother still only a lieutenant. Likewise the chances of the latter ever becoming a lieutenant-colonel would be small as compared with those of his medical brother. Consequently, even if the medical brother were exceptionally unlucky in the matter of drawing extra (specialist and charge) pay, his average pay throughout his whole service would be very much better, and his chances of retiring on £600 per annum at age 49 would be very much greater. Furthermore, while the combatant brother on retirement at 49 (the age you happen to mention) would be "down and out," the medical brother could make money by continuing to practise his profession. Finally, let me add a third brother to your family. He, too, is "medical," but goes in for general practice or public health work. What are his chances of being able at age 49 to buy himself an annuity equal in value to his brother's pension? To do so he must be able to save out of his annual income between £9,000 and £10,000. I submit these observations because it is a rule of advocacy to recognize the weak not less than the strong points of a case. Furthermore, though it is right to endeavour to get all we can, disguising the financial attractions of the service is fair neither to that service nor to yourself (and the Association) who have helped so materially to make them what they are.—I am, etc.,

October 25th. THE WATCHER.

THE ORGANIZATION OF THE PROFESSION.

SIR,—The address of Dr. Le Fleming to the Dorset and West Hants Branch of the British Medical Association, published in the SUPPLEMENT to the JOURNAL of October 25th, 1919, on the subject of the "Organization of the profession," shows at the same time so keen a grasp of the situation and so great a restraint in expression and desire above all to secure unity in the profession, that it is bound to exert no small influence on those who are sufficiently interested in the subject to read the SUPPLEMENT. At most of his conclusions it is impossible to cavil, but in two particulars, as it appears to me, he falls into error, and these two premisses are the foundation for his deduction that a strike of panel practitioners is not practicable. Were this indeed so, the efforts both of those of us who support the trade union idea, and those who believe in the present methods of the Insurance Acts Committee, would surely be doomed to failure.

The first point refers to the absence of strike pay, the second to the vested interests created by the Insurance Acts.

In regard to the first point, he asks, "What chance of success would a labour strike have if you not only abolished peaceful picketing, but offered the blacklegs a share in the wages of those who went on strike, and not only during the strike but permanently, and at the same time suspended all strike pay?" Contrariwise, I would say, "How certain of success would a labour strike be if the strikers could continue to perform their ordinary work, and to receive therefore rates of remuneration possibly higher than those for which they were striking?"

Dr. Le Fleming has surely forgotten that during a doctors' strike the patients must receive attention, for which they would have to pay ordinary private fees. With wages as they are there can be little doubt that the vast majority could afford to do this at a pinch; the pinch one would expect to provide the necessary incentive to the Government department to enter negotiations with a reasonable prospect of success—for the doctors.

The second point refers to the vested interests of panel practitioners, of which those who struck would risk the loss. But is not this a fallacy? Every striker risks the loss of his vested interest in that there is the chance, if the strike be hopelessly broken, of his losing his job; but the risk of the medical practitioner cannot compare with the risk of the wage-earning manual worker. The latter stands to lose everything—his work, perhaps a pension, perhaps his house. Naturally, therefore, no labour strike is ever settled (as distinct from broken) without a reinstatement clause. The same would apply to a doctors' strike, but with a distinction that even if the strike be broken no medical practitioner has lost his all. There is his private practice, augmented by such of his patients (one hopes not a few) who would prefer to stick to him rather than go elsewhere; and, besides, he can resume his panel work with a fair prospect of recovering the majority of those patients who have meanwhile been transferred. Risk there must be, but surely our risks are infinitesimal compared to those run by a labouring man.

The parliamentary influence recommended by Dr. Le Fleming would be a useful asset, and one hopes it may be secured; but such influence can only be effective if it has at the back of it the possibility of a strike in the last resort.—I am, etc.,

Heworth, York, Oct. 27th. J. C. LYTH.

CREMATION AND MEDICAL FEES.

SIR,—Ignore entirely the advantages of cremation from the hygienic point of view, and regard only the matter of death certification from the financial standpoint.

We find in greater London alone that the deaths exceed 70,000 annually. If all these were cremated the signing of Certificates B and C at even a small fee would enrich the profession by a considerable sum, with next to no charges in working expenses. Assuming, for argument, than an equal charge were made for B and C, even the low figure of 5s. each would net the profession in greater London £35,000 per annum. But I consider this scale to be inadequate, so that whatever sum is adopted the subsequent gain to the doctors would be a justly earned remuneration for the services they render to the relatives of the deceased and to the State.

The State has always "sponged" upon the medical profession and has continued so to do with regard to death certification, in spite of the strong case made out and put before the various committees which have investigated the questions of death certification, coroners, and so on; yet the State throws the onus of protecting the living upon the doctor and upon him alone; yet the method whereby he is supposed to do this is rudimentary and grossly

inadequate, and, even so, this grave duty the doctor is asked—nay, compelled—to do for absolutely no remuneration.

By the methods enforced by the Cremation Acts, not only is much more adequate protection afforded the living, but the State acknowledges that the grave duty thus placed in the hands of the only person competent by training and force of circumstances to fulfil the duty, entitles the doctor to a substantial fee in remuneration of his services.

Thus only under the Cremation Act is justice done to the deceased, his relatives, the public in general, and the doctor.—I am, etc.,

London, W., Nov. 4th. PETER DANIEL.

SIR,—In Kensington a divisional surgeon usually charges two guineas for a cremation certificate, but readily accepts one guinea, or even half a guinea, if requested to do so by the family doctor, an eventuality which does not often occur, as cremation seems to be regarded as a sort of luxury to be indulged in only by wealthy persons.—I am, etc.,

London, W., Nov. 2nd. S. D. CLIPPINGDALE.

SCHOOL MYOPIA.

SIR,—Your article on the above subject and subsequent correspondence are very interesting, particularly to those like myself who are engaged in the work of school medical inspection.

There appears to be a diversity of opinion as to the bearing of near eye-work on the causation of myopia in school children, but every one is agreed that structurally it is due to an abnormal elongation of the antero-posterior optic axis. There is also an agreement that it is found in some school children and not in others who are equally subjected to the same kind of school work. This would naturally lead one to the conclusion that the hereditary principle plays a major part in its etiology.

It has been found, however, that in the progressive myopia of school children, a temporary cessation of near work coupled with Swedish drill exercises brings about a marked improvement in the condition, and on resuming near work, not only has the improvement been lost, but there has again been a tendency for the myopia to progress. This leads one to the view that near work at least aggravates the condition.

If one takes such pathological conditions as varicose veins or pulmonary tuberculosis, there is a unanimous belief that they are not congenital, but that there is a hereditary predisposition, and that the environment and subsequent life-history are exciting factors, such as occupations involving long standing in the former case, and living under unhealthy and ill-ventilated conditions in the latter. Neither would develop if the exciting factors were withheld.

In my view, myopia is somewhat similar—namely, there is in the main a hereditary predisposition, and it is often seen in several members of a family, but it is aggravated by near work, and I am therefore reluctantly forced to disagree with the last sentence in your interesting article, "that myopia is neither originated nor increased by near work."—I am, etc.,

J. N. MEADE, L.R.C.P., L.R.C.S., D.P.H.,
School Medical Officer, Ayrshire Education Authority.

October 26th.

SIR,—In your leading article of September 27th you state "myopia is neither originated nor increased by near work." This conclusion has been adversely criticized. May I offer some observations? Does near work—reading, writing, and such like—produce myopia? In other words, does the converging and lowering of the visual axes, and especially the lateral movements employed in reading and writing, inflict muscular pressure on the eyeballs, increase the intraocular pressure, and so increase the length of the eyeballs? If so, why are the usual manifestations of increased intraocular pressure absent? A convergent squint does not produce myopia. A divergent myopic eye often becomes more myopic. Mechanical influences may aggravate cases of advanced or high-grade myopia, but it is extremely improbable that they can produce the so-called school, or low-grade, myopia.

A small percentage of cases is pathogenic—that is, due to keratitis.[1] These usually have corneal opacities, and I leave them out of consideration.

As myopia manifests its presence before schooldays, during schooldays, and after schooldays, it should be studied as a whole. During adolescence all the features and organs grow in varying degrees in conformity with the impulses of heredity, and so do the eyeballs. The near work of school years is an industry that is contemporaneous with the manifestations of heredity. There is no such thing as school myopia *per se*.

Some years ago I made an investigation into the etiology of myopia.[2] It extended over two years, and involved the examination of 1,500 consecutive cases with their family histories. Among other things, it was found that myopia was transmitted by the father to two daughters for one son, and by the mother also to two daughters for one son. The 1,500 cases were of all ages; 992 were females and 508 were males—near enough to establish the two to one standard involved in the above observations. What I venture to call the law of transmission of myopia can only be obtained when large numbers are dealt with. It is a manifestation of sex limitation, and seems to be applicable to all cases.

Another interesting fact emerged from the analysis of the 1,500 cases—namely, only 14.5 per cent. were near workers—typists, clerks, etc.

Classes for half-blind scholars may be desirable, but no ophthalmic surgeon is warranted in advising an education authority that school work produces myopia.—I am, etc.,

Glasgow, Nov. 1st. JAS. ALEXANDER WILSON.

THE SAFETY OF ETHYL CHLORIDE.

SIR,—Sir Charters Symonds, in his note (p. 558) on the removal of tonsils and adenoids, says that he does not consider ethyl chloride safe.

As anaesthetist to the Birmingham Ear and Throat Hospital and to the throat clinic of the Birmingham Education Committee I have used this anaesthetic very extensively. I have records of nearly 11,000 cases from 1907 to 1916, and since then have used it in over 2,000 cases a year—a total of nearly 20,000 without a death and with the rarest occasion for anxiety. It has disadvantages, but where a large number of cases have to be dealt with these are, in my opinion, outweighed by the advantages of speed and safety, provided always that the operator is an expert.

The idea that ethyl chloride is a dangerous anaesthetic seems widespread, but I have never heard of a death from it or seen a report of one, and I feel convinced that it is quite as safe as ether.—I am, etc.,

Birmingham, Nov. 2nd. C. B. DALE.

HYPERNEPHROMA OF THE OVARY.

SIR,—It would not be right to allow Dr. Knyvett Gordon's memorandum with the above title (BRITISH MEDICAL JOURNAL, October 18th, 1919, p. 495) to pass without comment. The lutein cell and the adrenal-rest cell are so very similar that no diagnosis of the latter can be considered complete which does not exclude the former. I recall seeing a very ordinary lutein formation exhibited some years ago as an adrenal rest of the ovary. The naked-eye appearances, too, as given by Dr. Gordon, do not preclude a lutein origin.

I feel inclined to regret that the description of these specimens, possibly so very interesting, was not expanded to include the grounds on which a lutein origin was negatived.—I am, etc.,

Liverpool, Oct. 29th. H. LEITH MURRAY.

THE INQUIRIES OF LIFE INSURANCE OFFICES.

SIR,—I read with very great interest Dr. Charles Rigby's letter in your issue of October 18th in which he questions the propriety of a medical attendant answering the customary questions addressed to him by a life assurance office in connexion with a proposal. In England the proposal form does not generally contain, as I believe it does in France, any specific authority for the medical attendant to reply to inquiries made by the assuring office, but surely such consent is tacitly implied by the proposer

[1] Wilson: Keratitis as a Cause of Myopia, *The Ophthalmoscope*, 1912.
[2] Wilson: The Factor of Heredity in Myopia, BRITISH MEDICAL JOURNAL, August 29th, 1914.

furnishing the office with the names of his medical attendants, just as he does those of two private friends as "referees."

In fairness to the other policy-holders of a life office it is essential to ascertain with the utmost precision the facts relating to the proposer's health and prospects of longevity, so that the risk may be properly assessed. The schedule of questions sent to the medical attendant is, in the majority of instances, supplemental to the actual examination, which is usually made by a physician chosen by the office. So far from damaging the prospects of the proposer as regards assurance, the evidence of the medical attendant is helpful and illuminating; while the applicant's replies to the questions in the proposal form respecting any past illnesses would certainly be detrimental to him, when the office came to assess the risk, if the medical attendant refused to furnish a report.

With regard to the question of fees, I notice that Dr. Rigby states that he has always been offered half a guinea for such reports. I can only say that so far as the society which I represent is concerned, the medical attendant is invariably paid one guinea for his report in the case of any adult proposer. This procedure has been followed here for at least sixty years, and a guinea is a very usual fee among life offices, except where the smallness of the premium renders such a payment prohibitive.

The real difficulty at the heart of this question is that the doctors themselves do not receive uniform payment for professional services. So far as life offices are concerned, it is a truism to say that any grudging of medical fees is recognized as false economy.—I am, etc.,

London, S.W., Oct. 27th. A. D. BESANT.

PSYCHIATRIC APPOINTMENTS AND WAR SERVICE.

SIR,—A notice appeared in *The Times* advertising for a junior assistant physician at Bethlem Royal Hospital. This is equivalent to a hospital staff appointment, and the position has in the past been held by men whose names were already known as authoritative alienists. Although membership of the Royal College of Physicians is desired the age limit is placed at 30, which even excludes from application a number of those whose experience is limited to house appointments and five years' service in the army. As the Government allow war service to be deducted from age in applying for permanent civil appointments, it is surely not unreasonable that the governors of this hospital should adopt a similar course or raise the age limit by five years.

Some of us are only too well aware that we have spent a number of most valuable years in the army, and it seems unnecessary that by advertisements such as this these feelings should be painfully accentuated.—I am, etc.,

X.

THE GENERAL MEDICAL COUNCIL ELECTION.

SIR,—I shall be glad if you will give publicity in your JOURNAL to the following explanation of the anomalous position in which I am placed with regard to the forthcoming General Medical Council election.

A short time ago, and in good faith, I promised support to the four British Medical Association candidates.

At the time I had no knowledge that the Medico-Political Union contemplated any action in the election, but was informed at a later date that four Medico-Political Union candidates would be nominated—and at the last Council meeting I was unanimously voted to be one of the four.

Under these circumstances I feel it incumbent upon me as a member of the Council to support my union and accede to their decision, and consequently cancel my previous action.

Needless to say, I regret having got myself into so awkward a predicament and trust to the generosity of your readers to accept this explanation of the incident.—I am, etc.,

Southampton, Nov. 2nd. ERNEST H. STANCOMB.

A BUREAU of narcotic research has been established in New York. Its purpose is to study the abuse of narcotics, to collect all data, remedial and legislative, bearing on the problem, and to provide machinery whereby such information can be distributed through proper channels.

Obituary.

FRANK FOWLER, M.D.,

Bournemouth.

WE much regret to announce that Dr. Frank Fowler of Bournemouth died from pneumonia on October 26th, at the age of 54. He was born at Twickenham, and was educated at Merchant Taylors' School and St. Thomas's Hospital, taking the diplomas of L.S.A. in 1889, and M.R.C.S. and L.R.C.P. in 1890, and graduating M.D.Durh. in 1905. He was medical officer in charge of the electrical department of the Royal Victoria and West Hants Hospitals, Bournemouth, and since 1912 was Secretary and Treasurer of the Dorset and West Hants Branch of the British Medical Association, of which he was a vice-president. He was formerly the representative of that branch and of the South-Western Branch on the Central Council of the Association. He was a past president of the Bournemouth Medical Society. Dr. Fowler was a profound student of *x*-ray methods and most competent in their application. His loss is felt by a wide circle of medical friends. There are, indeed, few practitioners in the district who did not at some time or another seek his help and guidance. In the summer of 1914 he read before the Southampton Medical Society a paper on the place of *x* rays in the treatment of cancer, which was published in these columns.

Dr. Fowler was an exceedingly well read man, and his sunny character and great versatility made him a most pleasant companion. He was laid to rest in the Bournemouth Cemetery on October 29th, many of his colleagues attending the funeral. The service was held at St. Peter's Church.

A colleague writes: "When Fowler read a paper to the Branch or the Medical Society, what struck one most was his ability and his detachment. If he introduced a subject such as 'radiation after operation for cancer,' he did not seem so very anxious to convert us to his views. He did not rail at the apathy of general practitioners or surgeons. He did not try to controvert, or go one better than, Professor X.; he simply told us that such a one had suggested that form of treatment. He gave his own reasons for trying it. He described the method and dosage he employed. He narrated some cases, broadly, and without prejudice, for or against. Then he gave a very honest and impartial summing up, leaving the matter before his audience to adopt or reject, but pretty certainly to think over. Fowler was a very fair mechanic. He made a good deal of the apparatus he used. This craftsmanship made him a good motorist. He could generally take down a part of a car and fit a renewal; and he contributed to the attendance at Branch meetings by driving two or three of his neighbours into the pleasant country towns of Dorset. He was secretary of the Branch for some years, and was always keen, business like, and cheerful. We shall miss his skill, honesty, sympathy, modesty, and cheerfulness for many a long day."

JAMES CRAWFORD RENTON, M.D., F.R.F.P.S.G.,

Late Surgeon and Lecturer in Clinical Surgery, Western Infirmary, Glasgow, and Surgeon to the Glasgow Eye Infirmary.

JAMES CRAWFORD RENTON, who died in Edinburgh on October 20th, was a son of the manse, and was born in 1851. He studied in Edinburgh, and became M.B. in 1872, proceeding to the degree of M.D. in 1882. In 1874 he settled in Glasgow, and there entered upon general practice; having a special interest in surgery, he was shortly afterwards elected to the staff of the Eye Infirmary. In 1876 his opportunities in the field of his inclination were increased by his appointment to the out-patient department of the Western Infirmary, and upon its staff he became assistant surgeon, afterwards full surgeon and lecturer on clinical surgery, a position he held for seventeen years. When war was declared in 1914 and military hospitals were instituted, he was posted with the rank of Lieutenant-Colonel to the 4th Scottish General Hospital at Stobhill, near Glasgow. In all these important and responsible positions he did good work, the results of which and the experience gained he communicated freely to the profession, for he contributed to many medical periodicals, and he has left behind him many valuable and interesting records.

For many years, and up to the date of his becoming surgeon to the Western Infirmary, he conducted a large general practice in the west end of Glasgow, and gained by so doing what is, maybe, the best foundation in experience for the operating surgeon—that is, the early and intimate knowledge of the emergency cases which, for success in their treatment, demand the most prompt interference; thus it is that we find his most valuable teaching in connexion with such acute abdominal conditions as intestinal obstruction, intussusception, appendicitis, rupture of the hollow viscera, and twisted ovarian pedicle. He possessed in a high degree the clear perception and power of deduction which constitute the basis of correct diagnosis, and he had the clinical instinct which is the outcome of intimate and careful observation. He was a good operator, careful, deliberate, and courageous, for no accident upset him, and no difficult proceeding daunted him, for he had the knowledge and experience which casts out fear. The surgeon that could write as he did that excision of the Gasserian ganglion was "exceedingly safe and easy of performance" was gifted with manipulative skill and spirit of a high order. He was an excellent and popular teacher and a kindly and conscientious examiner.

One of his hospital colleagues who knew him well writes thus: "Renton was certainly one of the kindest men I ever met; his consideration for the poor, the distressed, and those who had fallen by the way was constant, and no one has any idea how much gratuitous work he did." This from his colleague, while the writer, as his oldest friend, finds in the words of Carlyle, written of John Stirling, a summation worthy of Renton's character: "True above all things we call him; a man of perfect veracity in thought, word, and deed—there was no guile or baseness anywhere found in him—transparent as crystal; he could not hide anything sinister if such there had been to hide: A more perfectly transparent soul I have never known."

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

General Council.

At the statutory half-yearly meeting of the General Council of the University of Edinburgh, which was held on October 31st, several of the matters of business had a bearing upon medicine. Principal Sir Alfred Ewing, the Vice-Chancellor, presided, but during the election of Assessors to the University Court he vacated the chair. On the motion of Professor William Russell, M.D., seconded by Mr. David Wallace, M.B., C.M., Dr. R. McKenzie Johnston was nominated for another term of office, and Dr. J. W. Ballantyne, seconded by Dr. Edwin Bramwell, nominated Sir George Andreas Berry, M.D., LL.D., also for another term of four years' service as Assessor. There being no other nominations these gentlemen were elected Assessors to represent the Council on the University Court. The appointments to the staff of the university formed a long list; the medical ones included the names of three professors (Sir Harold Stiles, Professor Francis Darby Boyd, and Professor Jonathan Campbell Meakins) and of some fourteen or fifteen lecturers in experimental physiology, histology, anatomy, practical pathology, morbid anatomy, clinical surgery, clinical medicine, etc.

Matriculations.

Interesting statistics were given of the matriculation returns as at the seventh day of the session as compared with those in 1913–14 and 1915–16:

	1913–14 (Pre-War Year).	1915–16 (Lowest War Year).	1919–20.	Increase on 1913–14 (Pre-War Year).
Arts	1,005	626	1,170	165
Science	325	113	861	536
Divinity	19	14	44	25
Law	124	17	196	72
Medicine	844	464	1,451	607
Music	15	6	10	-5
Total	2,332	1,240	3,732	1,400

From these it appeared that the most notable increases had been in the Faculties of Medicine and Science, and Dr. Alexander Morgan, the chairman of the Business Committee, stated that the problem of accommodation had thus been raised in a marked form. The total matriculations on the seventh day of the session were over 3,700, and he calculated that before the album was closed they would be more nearly 4,700. Already there were 600 more students in medicine and 500 more in science than in the last pre-war year (1913–14). The University Court were looking at the need for the provision of additional buildings in a very serious way.

Medical Preliminary Examination.

The Council then discussed the proposal to raise the standard of the Medical Preliminary Examination to that of the Arts or Science one which had come to it in a communication from the University Court of date July 24th. Mr. Robert Dickson, on behalf of the subcommittee and of the Business Committee, moved approval of the proposal. A letter was read from Dr. John Haddon of Denholm, Hawick, suggesting that the council should take a step further and recommend that the Medical Preliminary Examination should be the M.A. degree; thus for Medicine as for Divinity there would be the assurance that a high type of candidate would be secured. The Rev. James Davidson agreed with Dr. Haddon's aspiration, but thought the council should be content in the meantime with the step in the right direction which the University Court was proposing to take. The council then unanimously approved the proposal of the Scottish Universities Entrance Board that the standard of the Medical Preliminary Examination should be the same as that of the Arts or Science Preliminary Examination.

Grants from Town and County Councils.

A long discussion followed on the question whether attempts should be made towards applying for grants for university developments from town and county councils in Scotland, as was being done in England. In the end a motion by Dr. W. A. Tait, recommending the University Court to lay the matter before the town council of Edinburgh, was adopted.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

An ordinary Comitia of the Royal College of Physicians of London was held on October 30th, the President, Sir Norman Moore, Bt., in the chair.

It was reported that Mr. Jack William Jeffery had been appointed the twenty-seventh Jenks scholar.

The following candidates who had passed the required examinations were admitted Members:

Wm. John Adie, M.B.Edin., Phoebe Mildred Bigland, M.D.Liverp., Frederick George Chandler, M.D.Camb., L.R.C.P., Major Greenwood, L.R.C.P., Isaac Jones, M.D.Melb, Wm. Bernard Knobel, M.D.Camb., L.R.C.P., Fred. Donald Herbert Blois Lawton, M.D.Melb., John Ernest Albert Lynham, M.D.Belfast, Basil Thomas Parsons-Smith, M.D.Lond., L.R.C.P., Wilfred John Pearson, M.B.Oxon, Egerton Llewellyn Pope, M.D.McGill, L.R.C.P., Robert Maurice Ranking, M.D.Camb., L.R.C.P., Frank Arthur Roper, M.B.Camb., L.R.C.P., George Charles Willcocks, M.B.Sydney.

Licences to practise physic were granted to 79 candidates.

On the recommendation of the Committee of Management, the Salford Royal Hospital was added to the list of general hospitals recognized by the Examining Board in England.

Sir James Galloway was reappointed a member of the Committee of Management.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

Surgery.—†R. A. D. Bernhardt, *O. H. Brown, *†C. E. G. Busbridge, *N. D. Dunscombe, A. Furniss, *†J. Kershaw, *†J. L. Walker.

Medicine.—*†C. E. G. Busbridge, *† de M C. Cottens, *†J. A. Hart, *†G. K. Reeves, †E. W. Terry.

Forensic Medicine.—C. E. G. Busbridge, de M. C. Cottens.

Midwifery.—M. L. Barst, J. E. Barrie, C. E. G. Busbridge, de M. C. Cottens G. W. Robinson, F. Smith, A. Weinger.

* Section I. † Section II.

The diploma of the Society has been granted to Messrs. C. E. G. Busbridge, J. Kershaw, and J. L. Walker.

The Services.

TERRITORIAL DECORATION.

The Territorial Decoration has been conferred upon the following officers:

R.A.M.C.T.F.—Colonel (temporary Major-General) Sir Robert Jones, K.B.E., C.B. Lieut.-Colonels: Richard R. Sleman, V.D., Sir William Thorburn, K.B.E., C.B., C.M.G., Cyril H. Hawkins, C.B.E., D.S.O., (Brevet Colonel) Wilfred Howorth. Major (acting Lieut.-Colonel) Thomas Kay, D.S.O. Majors: John G. Martin, Edward C. Stack, William M. Mackay, John B. McBride, Matthew B. Ray, D.S.O., Robert Lindsay, William C. Murray.

R.A.M.C.T.F.R.—Majors Donald G. Campbell and Peter M. Dewar, attached to R.A.M.C.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS.

At the usual quarterly committee meeting on October 31st five grants were made to cases in the Benevolent Branch for Officers, amounting to £350, and sixty-two grants in the Relief Branch for the rank and file, amounting to £2,007 5s.

These funds are for the relief of widows and orphans of commissioned officers and non-commissioned officer and men of

the rank and file of the Royal Army Medical Corps, Special Reserve, Territorial Force and New Armies, and also for the relief of the children of those who have been so severely damaged in the present war that they need help for the education of children. Requests for relief should be addressed to the honorary secretary, at the offices of the funds at 11, Chandos Street, Cavendish Square, W.1.

Lieut.-Colonel Edgar Francis Eardley Baines, I.M.S., has been awarded the Distinguished Service Order for distinguished service in connexion with the defence of Kut-al-Amarah.

Medical News.

SIR SHIRLEY F. MURPHY, K.B.E., F.R.C.S., has been appointed by the Minister of Labour to be deputy chairman of the trade board for the fur trade in Great Britain.

THE centenary dinner of the Hunterian Society will be held on Wednesday, November 12th, at the Trocadero Restaurant, at 7.30 o'clock, with Dr. W. Langdon Brown, the President, in the chair. Ladies will be invited. A special centenary award of the society's medal will be made to Mr. John Adams, F.R.C.S., whose work at the Thavies Inn maternity venereal centre has often been referred to in these columns.

THE members of the London and Country Rambling Society visited the Apothecaries' Hall on November 1st and were shown round by the librarian, who pointed out the many features of interest in the building, erected just after the great fire, and displayed a number of old books, including Gerard's *Herbal* (1633).

AT a complimentary dinner given on October 28th, by the "African World" War Comforts Service to the patients of the South African Military Hospital, Richmond Park, a silver tobacco jar and mirror were presented to the commanding officer, Lieut.-Colonel Sir Edward Thornton, K.B.E., S.A.M.C., and Lady Thornton.

AT a meeting of the Royal Aeronautical Society at the Royal Society of Arts, Adelphi, on Wednesday next, Dr. C. A. Swan will give a lecture on some physical and psychical effects of altitude. The chair will be taken by Sir Arbuthnot Lane at 8 p.m.

A DISCUSSION on the reconstruction of the public health services will be opened by Dr. E. W. Hope, M.O.H. Liverpool, at a meeting of the Royal Sanitary Institute at Bootle, on Friday, November 14th, at 7 p.m.

MR. J. D. ROCKEFELLER has made a further gift of £2,000,000 to the Rockefeller Institute for Medical Research, which he founded in 1901. The institute has already received from its founder successive gifts amounting to £5,500,000 and real estate valued at £500,000. The latest gift will enable research to be conducted in new fields in biology, chemistry, and physics, as well as in medicine itself, and practical problems relating to disease in men and animals to be studied.

THE National University of Ireland has conferred the degree of Master of Science *honoris causâ* upon Captain C. J. K. O'Malley, M.C., R.A.M.C.

MR. CAIRNS FORSYTH, Surgeon to the French Hospital, London, has been awarded the Cross of Chevalier of the Legion of Honour for services rendered to France as médecin chef of a mobile English hospital attached to the armies of the Argonne and Verdun during the war.

MR. P. A. MOLTENO and his wife have offered the sum of £30,000 to the University of Cambridge, for the erection and maintenance of a suitable building, to be used as an institute for parasitological research in connexion with the department of Professor G. H. F. Nuttall, M.D., F.R.S., provided that the University finds the site.

THE Secretary of King's College Hospital Medical School, Denmark Hill, London, S.E.5, will be glad to hear from former students living within easy distance of London, who qualified in 1912 or later, and who would like to play in the hospital Rugby football team.

AFTER a hearing of eight days before Mr. Justice Shearman and a special jury the consolidated suits, Everitt *v.* Everitt—Everitt *v.* Everitt and Whatley, terminated on October 31st. Mrs. Everitt sued for a judicial separation from Major Sydney George Everitt, of Knowle Hall, Knowle, on the ground of his alleged cruelty, and Major Everitt petitioned for a divorce on the ground of Mrs. Everitt's alleged adultery with Dr. James Lawson Whatley. The jury found that Major Everitt had not been guilty of legal cruelty, and that neither Mrs. Everitt nor Dr. Whatley had been guilty of adultery. Upon these findings Mr. Justice Shearman dismissed Mrs. Everitt's petition, and made the usual order for payment of the wife's costs. Major Everitt's petition for divorce was dismissed with costs, and the judge refused the application of Major Everitt's counsel that Dr. Whatley should be deprived of his costs, but directed that the usual order as to payment of costs by the unsuccessful party should be made. Messrs. Hempsons, acting on behalf of the Medical Defence Union, were solicitors for the co-respondent. The case is a striking illustration both of the perils of medical practice and of the value of a powerful defence organization.

IN the recent borough council elections Dr. Henry Dutch was elected for the City of Westminster, and at Burnley Dr. W. F. Munro and Dr. A. C. Glashan headed the poll for their respective wards. No doubt many other medical practitioners have been returned throughout the country.

IN the Edinburgh Sheriff's Court on October 28th Louis Parker Wade was charged that, not being a qualified practitioner, he in his premises 7 and 8, St. Andrew's Street, Edinburgh, did for reward treat a man for venereal disease, give him advice in connexion with the treatment of the disease, and prescribe a remedy. A plea of "not guilty" was tendered, but the charge was found proved after evidence had been given. The sheriff-substitute said that this was the first case which had come before the court and imposed a modified penalty of £25.

AT their last meeting the guardians of the Brentford (Middlesex) Union adopted recommendations which should have the effect of raising the medical and nursing services of their separate infirmary well above the Poor Law level. These recommendations provide for a children's and maternity block, the setting up of an *x*-ray department, the appointment of visiting specialists, and such an increase in the nursing staff as will permit of the introduction of a forty-eight-hour week. The specialists to be appointed at once will include a physician, a surgeon, a gynaecologist, and a radiographer; other appointments will be made hereafter. It is intended that regular weekly visits shall be paid, so that all new admissions may be seen, and the guardians have agreed to meet travelling expenses at the rate of a guinea a visit. In respect of variety and character, the admissions to the infirmary, which has 412 beds, have in recent years tended to approximate to the general hospital type, and in the new developments the guardians have been guided by hospital practice.

Nature, which has so firmly established its position as the leading journal of general science in this country, celebrates its jubilee this week by the issue of a special number. The first issue appeared on November 4th, 1869, under the editorship of Sir Norman Lockyer, who is now retiring. His successor, Sir R. A. Gregory, has for the jubilee number obtained the assistance of many leading men in this country, and some abroad. Among his contributors are Sir J. J. Thomson (President of the Royal Society), Sir Ernest Rutherford, Professor Soddy, Sir Clifford Allbutt, Professor Bateson, and many others.

Letters, Notes, and Answers.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES AND ANSWERS.

INCOME TAX.

"H. B." explains that the inspector of taxes refuses to treat as exempt under Section 17 (2) of the Finance Act, 1919, a gratuity received during 1918–19 as M.O. to a V.A.D. hospital under the British Red Cross Society.

*** If the payment in question is a "demobilization payment" the claim would be well founded. Our correspondent does not state whether there are any peculiar features in the case. We suggest that he refer the inspector to the section in question and to the cases of "Stockham *v.* Simpson" and "Curtis *v.* Holdsworth" (not yet reported), under which it has

been held that civilian doctors are entitled to "service" rates of tax for military hospital duty. The two benefits—lower rate of tax and exemption from tax on gratuity—would seem to be inseparable.

"Assam" is spending six months' holiday in this country. What is his position as regards (*a*) monthly remittances from the proceeds of his foreign practice; (*b*) interest on £1,000 Funding Loan.

*** (*a*) Assuming that "Assam" has not been maintaining a residence in this country, he is not liable to income tax unless his stay here extends to six months. If that should happen he becomes liable as a "resident" to payment of tax on the amount of the remittances from the date of arrival. (*b*) Exemption should be claimed on a form to be obtained from the Repayments Branch, Australia House, London, W.C.2. It should be explained that the claim will be based on the fact that "Assam" is ordinarily resident outside the United Kingdom.

LETTERS, NOTES, ETC.

Anaesthesia in Tonsil and Adenoid Operations.

Dr. H. L. Hamilton (Southampton) writes: Ethyl chloride has been used as a general anaesthetic at the Southampton School Clinic for a number of years and has proved satisfactory. A Norman Porritt inhaler is used, with face-pieces of two different sizes. One minim of ethyl chloride for each year of the child's age is sprayed on the absorbent wad placed in the inhaler. About ten minutes is allowed for each operation, from the time the child comes into the operating room to the time it leaves. After the operation the child remains in a warm waiting room for about an hour and is then taken home by the parent or guardian. The advantage of ethyl chloride is its rapidity of action. It has been found safe, the recovery is rapid, and there do not appear to be any bad after-effects. Older children take longer to "go under" than the younger, and appear to be generally more resistant to the anaesthetic.

Schoolboys' Weight.

Dr. W. Atterbury (North Finchley) writes: I have been in correspondence with Dr. Hamilton of Parkstone, who says he was completely surprised to hear that at his boy's school it was regarded as the rule rather than the exception for a boy to lose weight during a school term, and he regards (rightly, in my opinion) this statement as most dangerous. If that is true, what would happen to these boys if there were no holidays? Would they continue to lose weight until they broke down or died? And how is it that a boy who has lost 2 lb. or 3 lb. during the school term will gain 5 lb. to 7 lb. during the holidays, as my boy did? The school medical officers say it is the strenuous life which causes loss of weight, but in my experience boys take far more exercise during the holidays, as they have the whole day for their amusements and play games or cycle from morning till bedtime. The school hours are short and the work, as a rule, not too exacting, so it cannot be the mental effort which pulls the boys down. I am convinced, and so, I think, is Dr. Hamilton, that the food is insufficient in quantity or quality, and the dietary should be thoroughly investigated. I regard the statistics of Dr. Lord (Colwyn Bay), which show that more than 40 per cent. of the boys lost an average of 2¼ lb. during the healthiest term of the year, as highly unsatisfactory. The proof that many boys are insufficiently fed at school is in their loss of weight. One of the causes, I believe, is the daintiness of some of the boys, who will, for example, not eat meat if too fat or underdone. In these cases obviously some supervision is required (by the matron), especially in the case of the younger boys.

Parturition at Advanced Age.

Dr. Wm. Howie (Waterloo, Liverpool) writes: It may be of interest to record a confinement—a midwife's case—to which I was called a few months ago. The patient told me her age was 52 years, and she certainly looked it. Labour was rather slow, and I delivered her, with forceps, of a healthy-looking child. She had had a large family—nine or ten, I think—most of them still alive.

Medical Appointments under the Ministry of Pensions.

"Ex-R.M.O." writes: Many weeks ago the British Medical Association approached the Pensions Ministry with several recommendations, one of which was that the replacement of civilian medical referees by demobilized R.A.M.C. officers should be undertaken forthwith. It is eleven months since the armistice, and the civilian general practitioners have been allowed to hold the refereeships during the optimum time for fees—that is, the period of demobilization. Is it not time that the Pensions Ministry acted in this matter? In common with many other officers demobilized during the present year, I should be glad to know what further overtures the Association has made in the meantime or intends to make to secure the carrying into effect of the earlier resolutions. In Scotland the posts have been advertised, but up to the present no such move has been made in England. Why not?

Temporary Commissions in the R.A.M.C.

"Index" writes from the Army of the Rhine: In a recent editorial you mention that the response of medical officers to the new terms of service has not been satisfactory. What is wrong is that there is not enough work during the last three months. I have never had more than half an hour's work a day, and I have spoken to many others in the same position; and leave is held up because we "can't be spared."

I know many who would stay if some opportunity for doing a fair day's medical work were given them, but they feel that the excellent remuneration offered them does not compensate for the time wasted.

"Captain, M.C.," writes: I have read the frequent appeals in the Journal (backed by official weight) asking for new medical officers for the army. It is little wonder the response is so poor, and personally I would not persuade any doctor I knew to join the forces. On the contrary, I would urge them strongly to steer clear of it, as promises made are as valueless as they have been all along. Personally I joined up in 1914, and was demobilized at the end of June, 1919, having been invalided for dysentery. Up to date and after nearly four months of waiting and letter writing, I can get neither my gratuity nor an answer to my letters. Do you wonder at recruits being chary of such a service?

Organotherapy.

Dr. A. Macbeth Elliot (London) writes: The exhibition of internal secretions is a subject that has occupied the minds of many members of the medical profession with ever-increasing interest for several years. But it is being exploited in too many directions, and without sufficient scientific grounds or clinical facts for the promises held out. We read that it will make your hair grow, or if you are an unfortunate female with too much hair on your upper lip, some other secretion will remove this growth. We are apt to move too rapidly, and to those interested in endocrinology let me recommend Gley's little book on this subject. It will act as the necessary brake to much of the literature on organotherapy.

There are many preparations of internal secretions on the market. It is questionable if any two are alike. And herein lies the secret of many failures, and of the variety of opinions that are being expressed. What A. attains with B.'s preparation, C. fails to obtain with D.'s. There is still an immense amount to be learnt about the actions of these internal secretions, even in such an important matter as the proper time for administering them. W. H. Howell has shown that a second injection of pituitary extract administered soon after the first has not the same effect on the arterial pressure as the first. This fact has been proved by other observers. Gley asks: "Have we here to deal with another action of the same extract?" Why? May we not be dealing with a negative phase? If we wait long enough before repeating the second injection we do get the same effect on pressure as with the first. And also with corpora lutea, we do get the fall of arterial pressure by waiting a sufficient time before our second dose. Many of the failures or unpleasant results with organotherapy are in part due to too frequent administration or to too large doses. But most of the failures are due to the fact that we are exhibiting inert material. Gley has shown that organic extracts, even though specially prepared and preserved, quickly lose their toxicity. That organotherapy has a valuable future is more than evident. But already, to judge from the literature from America, we are promising too much. Not even three swallows make a summer; nor do three or even four similar cases cured by this or that extract warrant some of the conclusions that are being published.

Vacancies.

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 51, 52, 53, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 49, 50, and 51.

The following appointments of certifying factory surgeons are vacant: Eastbourne (Sussex), Fleetwood (Lancs), Princes Risborough (Bucks.).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Note.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

ON CARDINAL PRINCIPLES IN CARDIOLOGICAL PRACTICE.

A British Medical Association Lecture delivered to the Sheffield Division, October 24th, 1919.

BY

THOMAS LEWIS, M.D., F.R.C.P., F.R.S.,

HONORARY CONSULTING PHYSICIAN TO THE MINISTRY OF PENSIONS; LATE CONSULTING PHYSICIAN TO THE EASTERN COMMAND; PHYSICIAN ON THE STAFF OF THE MEDICAL RESEARCH COMMITTEE; PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, LONDON.

In working for the Army Medical Services during the years of the war, and in working for the Ministry of Pensions since its inception, it has been my good fortune to have been more closely associated with my brethren of the medical profession in daily work than at any previous period. My duties have brought me exceptional chances of seeing the routine work of many medical men while they have been dealing with patients classed as cardiovascular. For a long while I have been aware that a large proportion of pr etitioners in this country experience a feeling of insecurity when they handle cardiac cases, and, during the period to which I have referred, it has been a special purpose of mine to understand why these maladies should be regarded as perplexing.

For very many years after Laënnec's discoveries the sounds of the heart and the murmurs produced at the several orifices have received extraordinarily minute attention. They have been divided and subdivided; they have been written of from this standpoint and that, though chiefly from the standpoint of the cause of the sounds. More recently, methods of percussion have undergone a similar and intensive study; more recently, and in great array, special instruments have been devised, including sphymographs, polygraphs, electrocardiographs, sphygmomanometers, special stethoscopes, and from those who have employed these there has streamed forth a prodigious amount of writing. During the last few decades the eager search for the new has piled up the mass of detailed knowledge; the pile has been growing in geometric progression. The day has long gone during which any general student of medicine could keep pace with contemporary writings. He is now faced with an extraordinary medley of statements, simple, simply abstruse or technically abstruse, of which it is no longer possible for any one individual to test or judge the accuracy. We know that some vital facts have come to light; we suspect or know that a considerable proportion of the claims set forth will not be justified by time.

Side by side with this progress new terms have been introduced, old terms have changed in meaning; throughout hypothesis has run riot. A very great deal of the work, a very great deal of the thinking, has, from the standpoint of the exact sciences, been conspicuously slipshod. The over conscientious and passive student quickly acquires a clogged mind. To judge the true from the false, the large from the small, tries the faculties of those who select and pursue a limited sphere of study; it is impossible to those who have no intimate knowledge of the subjects discussed. The effort to keep pace has led many, unwisely, to acquire a smattering of things beyond their province—to use terms the meanings of which they have never been able fully to grasp. Time for tests and for reflection is shortened or is gone; the mind is confused by an ever increasing flood of new ideas and suggestions. In this maelstrom general principles have striven to survive; some have succeeded, some have been raised to undue prominence, others have sunk from sight; in the raging of troubled waters all have been, and still are, in peril. There arrives a time when an attempt must be made to sift from the wreckage—a time when it is expedient to assess values.

Medical men are hampered in their work to-day by the complexity of ideas, by a consequent absence of system, by the use of terms which being undefined convey inexact or different meanings; by a failure to judge what is within or without their province and power.

In discussing problems of diagnosis and of prognosis certain questions recur. Of the many prevalent ideas some appear to me no longer acceptable or serviceable; a few of the more prominent of these I propose to discuss, using them as illustrations of my general theme. But the main object of my lecture is to point to what I regard as essentials, not in research work upon heart disease, but in the routine handling of unselected patients. To simplify my subject I shall deal with chronic maladies only. I shall also confine myself to common maladies, for if we can devise a system of managing such, for the moment satisfactorily, we shall have accomplished the larger part of our task.

The Division of Heart Affections into Organic and Functional Groups.

An idea is conveyed to us, we receive and adopt it, and *it grows*. Sometimes it grows unreasonably, sometimes beyond recognition. But it has seized our minds, we encourage it, and in the end, if we allow it to do so, it masters us. The old idea of dividing heart affections into organic and functional is an instance of this kind; it has grown out of all reason. This preliminary classification no longer occupies the place proper to classification; a good classification is a servant. It has been so fostered that it has come to occupy a predominant place; latterly its hold upon the professional mind has seemed almost tyrannical. When the war came it entrenched itself behind earthworks long prepared for it, those preposterous terms, "V.D.H." and "D.A.H.," into which all patients with real and most of those with imagined affections of the heart were in the end strictly divided. Since the war the idea still remains firmly rooted, for with its great reserves it won the day; and with the fruits of that easy victory the medical services of the Ministry of Pensions are now ceaselessly struggling.

As it stands, the idea with its growth of associations is mischievous. It has become so by the inexactitude of its terminology. The most frequent question which I am to-day asked in regard to cardiac cases is this: "Is there or is there not organic disease?" The answer must be "Yes" or "No." It is a question which, personally, I studiously refuse to answer; it is a duty to refuse, and the duty, I think, of every medical man. The manner of the answer is dictated; "organic" disease is a disease in which there is structural change; the remaining cases are "functional."*

The issue seems clear: Is there or is there not structural change? But the issue is not clear, nor is it useful; on the contrary it is mischievous. We must inquire the purpose of the question, the manner in which the answer is to be used. If, in diagnosis, the cases are divided into two groups—"organic" and "functional"—according as there is or is not structural change, this division and its meaning will not be respected; for while I am asked whether structural change exists or does not, the answer is read as "serious" or "trivial." It never has been shown, nor will be shown, that all instances of structural change in the heart are serious; it never has been shown, nor will be shown, that affections in which the heart is suspect, but which are accompanied by no evidence of structural disease, are of trivial import. Yet such are the almost universal and instant assumptions as the affirmative or negative answer is given. The question is a concealed trap of our own setting. The answering of it is a prevalent cause of needless wrangling and heart searchings; the answer, when it comes, is a fertile source of misunderstanding and injustice. If there is no structural disease of the heart, it is usually true that the disturbance of the heart is not serious; but that does not mean that the malady from which the patient suffers is not serious, it may be extremely serious. The heart is a very susceptible index of health, and maladies which in the past have been regarded widely as trivial (functional) though primarily cardiac, are almost certainly not primary cardiac maladies, but as a rule disturbances of the heart secondary to disease elsewhere.

A sound knowledge of those affections which pertur without injuring the heart is essential in dealing with patients supposedly suffering from cardiac maladies. Three-fourths at least of the cases classed as cardiac a the present time are not primarily cardiac at all. Becaus the heart's action is disturbed in these patients, a so because the most obvious symptoms and signs seem ne

* I am aware of my venturesomeness in thus interpreting the definition of this term; some will disagree with this interpretation; yet it is frequently, if not usually, used in this sense. When a medical term is open to two definitions it is time it was abandoned.

point to the heart, that organ gathers to itself almost exclusive attention. In such cases it is not infrequent that clear signs of disease in some other organ of the body are entirely overlooked; in such cases it is frequent that less conspicuous signs of disturbance elsewhere are passed by. It is a sound rule in dealing with a supposed cardiac malady to search the whole body minutely for sources of infection when signs of such heart mischief as is known to upset the circulation are not forthcoming. The question, "Is there or is there not organic disease?" is not a necessary question. A man who is wise cares little whether he has structural change in his heart or not; the State, if it were wise, would be equally indifferent. I place this statement in a context from which it is not to be removed. A wise man cares whether he is fit or not for work and if his prospect of health is good or bad; these are questions distinct from that under criticism. Here is an extreme illustration: A man has a scar in the skin of his leg and presents that leg for examination. Who cares that the scar constitutes structural disease? A man may have a similar scar on his pericardium or on the edge of his mitral valve, a healed scar which never has and never will cause him inconvenience, providing no medical man discovers in him the signs of it and misinterprets its significance. When we see the scar on the leg we want to know how the leg works; when we find the signs over the heart which *may* mean a scar in the heart, it behoves us to inquire how the heart does its work; that is the important consideration.

It will be perceived that I have in mind the systolic murmur and its significance. A systolic murmur over the precordium tells little or nothing of a man's capacity for work or the advisability of his engaging in it; it tells us little or nothing of the man's prospect in life. I do not propose to enter here in detail upon the evidence for this statement, for time is limited and I have somewhat recently written fully upon the subject.[1] But I suggest to those who still experience misgivings in the presence of systolic murmurs that they should examine a series of healthy young men, not, as is the custom, under conditions of rest, but after a few minutes of fairly strenuous exercise; they will discover that the healthy heart is not always so noiseless in its movements as has been imagined, and will, I think, be persuaded that systolic murmurs, soft, harsh or conducted, are natural phenomena when the organ is accelerated by exercise. They will find in these young men precisely the signs which have been used widely during the period of the war as evidences of "organic" disease of the heart, which have led to so many improper rejections of recruits, to so many improper discharges from the service, and now form the basis of many unnecessary or unnecessarily high pensions.

The other side of the picture shows men who are genuinely distressed when they exert themselves in any way, but who, presenting no cardiac signs other than those of a supposed "functional" condition, are dealt with casually or cavalierly. Thousands of these men were unwisely accepted as recruits; thousands more acquired their symptoms during service; and to the last group now belong many who, being regarded as "functional," suffer the innuendoes which that term frequently conveys, and receive as a consequence unjustly small pensions.

DISEASE OF THE VALVES.

Pick up an old, or modern, textbook of general medicine and you will find diseases of the heart classified. With one of the chief groupings I have dealt. A subgroup of structural disease is that of valvular disease, and this subgroup receives an emphasis to which it is by no means entitled. At the present day, if one asks graduating students directly, if one inquires less directly of medical practitioners, what varieties of chronic heart disease are recognized, the enumeration will almost always begin in the same way. There are four conditions which stand out in their minds; they are "aortic incompetence," "aortic stenosis," "mitral incompetence," and "mitral stenosis." As often as not the list begins there and ends there. Ask what cases lie in the wards of a hospital and, if there are serious heart cases, these are the conditions which will be most frequently named. Now these conditions are not diseases at all; they are descriptions of the events at two of the valvular orifices of the heart; they are dependent, if you will, on disease or imperfection of these valves. To the names as such there is no objection; the objection is to the manner in which they are used. The terms are regarded individually as sufficiently descriptive of many a patient's case; actually each is wholly insufficient from this point of view; *a fortiori*, the term mitral incompetence is insufficient. If I state that I have under my care a patient who suffers from mitral incompetence, you cannot conceive whether the patient is engaged suitably in his everyday occupation or whether he lies moribund; you cannot tell whether his prospect in life is good or is bad; you cannot judge whether he requires treatment or not. The term, used in a diagnostic sense, conveys little or nothing of the facts of the case. "Mitral incompetence" constitutes a diagnosis by fashion only. Precisely the same remarks apply, though somewhat less forcibly, to the remaining terms.

A classification of heart disease of this kind has but a minor value for purposes of description, or for guiding prognosis or therapy. When medical men are so imbued with the supposed significance of valvular disease as to regard its diagnosis as the chief end point of the examination, then valvular disease occupies a grossly exaggerated position in their thoughts. Such, unhappily, it possesses in the minds of many, I would say of the majority of medical men to-day. How often is astonishment expressed when a patient comes for examination (or to autopsy) with dropsy, or a greatly enlarged heart, and no disease of the cardiac valves. The reiteration of such surprise is in itself remarkable. Grave disease of the heart, in the absence of disease of the valves, is extremely common in the elderly; it is also common enough in the young.

There is another curious way in which the emphasis of valvular affections leads to grave misconception. I have said that the named conditions of the valves are not diseases at all; yet they are commonly regarded as such by those who fail to reflect. Many intelligent students and graduated men are so misled by these terms that they come to regard the presence of two such conditions as constituting a double disease. The terms "double aortic," "double mitral" are sufficiently commonplace to bear witness to this tendency. Nevertheless, there is in these patients but one lesion of the valves. Loose speech of this kind consorts with loose thinking; the use of the adjective "double" conjures up a grave prognosis. Heedlessly, a man who presents aortic stenosis, and its almost invariably associated regurgitation, is regarded as in much more serious case than is he who presents regurgitation alone. I know of no evidence that this is so. The presence or absence of stenosis in a patient who shows regurgitation is certainly not a prime factor in arriving at the prognosis, it is at the most a very subsidiary point. The misconception is even greater when the mitral valve is in question. Often, after a diagnosis of stenosis of the mitral valve has been made, the doctor's expression grows ominous as he detects a systolic bruit. In point of fact, the detection of this second murmur adds nothing whatsoever to the seriousness of the prognosis; that it does is nevertheless a very common belief. It is a belief due to lack of reflection; there are good grounds for the view that stenosis of this valve is always accompanied by regurgitation. Might we not even argue in general that the greater the stenosis the less in all likelihood is the regurgitation? But it serves no good purpose to argue such matters, the practical test of those who watch the progress of these cases shows that the point is entirely subsidiary; so, incidentally, is a systolic apical murmur in a patient who has disease of the aortic valves. Detect mitral stenosis and you need waste no time inquiring into the question of incompetence; there are far more serious matters to weigh. At the present time cardiac prognosis, as it is widely practised, is perilously near to counting murmurs and assessing the gravity of the outlook in proportion.

Both for prognostic and therapeutic purposes there is value in ascertaining lesions of the aortic and mitral valve. Speaking quite broadly, there are two conditions of these valves which it is imperative should be recognized whenever it is possible; they are mitral stenosis and aortic incompetence. To recognize stenosis of the aortic valves when regurgitation is known to exist, to recognize incompetence of the mitral valve when mitral stenosis is known to exist does not advance us materially. To diagnose aortic stenosis in the absence of signs of incompetence is outside the province of general practice; it is for everyone a hazardous undertaking. To recognize that mitral incompetence is present, while mitral stenosis is

not, is a task fraught with not inconsiderable difficulties; furthermore, when it is done, it gives little or no aid when we come to the prophecy.

In brief, in dealing with chronic heart affections, there are but two conditions of the aortic and mitral valves, there are but two common conditions of any heart valves, which will repay a general physician expenditure of much time and thought; these are incompetence of the aortic valves and stenosis of the mitral valves. Both these conditions may usually be diagnosed with confidence, for it is their habit to present signs of an unequivocal nature. That is of high importance; a step taken with certainty is of far greater value than one taken even a little less confidently. A prognosis is too important a thing to mould on anything but a secure basis.

The comparative importance of these diseases of the aortic and mitral is to be emphasized from a second standpoint—the diagnosis carries conviction of an inflammatory or degenerative lesion of the heart. When we know that a patient has a regurgitant current of blood from aorta to ventricle, or when we know that the current is obstructed between left auricle and ventricle, we have learned something of extra burdens which the heart muscle must bear in its work. Nevertheless, that knowledge is outweighed by a further conclusion which may be formed for practical use. It is that the heart as a whole has been exposed to and has probably suffered damage; it is safe to assume for practical purposes that when these valvular lesions exist the muscle of the ventricles is in greater or lesser degree faulty. There are some exceptions to this rule, but these are comparatively rare; one of the surest ways of diagnosing a faulty myocardium is to diagnose it in those who present mitral stenosis or aortic disease, and to diagnose it purely on the knowledge that these valve lesions exist; especially does this statement apply to aortic disease. It is my confident belief that, had systolic murmurs and modifications of the heart sounds never been discovered, the practice of the profession would have stood on a much higher plane to-day than it actually does. (I do not say that it *must* have stood higher, but that it *would* have stood higher.) As these signs are used by medical men in general at the present time, they are productive of infinitely more harm than good. They are not useless signs, but they are signs frequently misinterpreted; their value is limited. When a police officer on his night round spies an open window, it behoves him to inquire; he is unwise to conclude there is a thief in the house. These cardiac signs are hints to us, useful guides to possible local mischief; that is their proper status in an examination, but it is not the status which they have.

Prognosis in cardiac affections, as it is generally practised to-day, is pitifully inaccurate; because that fact is generally recognized it is equally diffident; what is not understood is that far greater accuracy is easily within reach. Accuracy, or, more strictly speaking, comparative accuracy, is regarded as unattainable; that is chiefly so because the broad principles and the outstanding facts have been lost to vision in a cloud of relative trivialities. Methods of examination, some useful enough in their proper sphere, many more of very dubious value, have been introduced. The subject as it is written and expounded has grown inordinately in complexity and the landmarks have vanished. Because a physician has possessed himself of an electrocardiograph, a polygraph, an *x*-ray machine, a blood pressure instrument, or some ingenious form of stethoscope, it does not at all follow that he has become competent to judge a patient's condition; not infrequently the very reverse is the case, for more often than not the limitations of these devices are far from being comprehended. In this opinion I am absolutely at one with the recent pronouncement of Sir James Mackenzie. The signs which foretell favourably or the reverse can be elicited at the bedside by simple means, and the devices to which I refer had far better be left untouched than handled, as they often are, improperly.

The remedy, so it seems to me, which alone remains to the general practitioner to-day is simple but drastic. It is to fasten on to certain cardinal points and seriously to study their values—to take these cardinal points as a basis of everyday work and for the moment to discard what remains. It is to adopt a simple and broad scheme and to obtain a full knowledge of that scheme by applying it to patients; to disdain more comprehensive and flattering plans, of which at the most a mere smattering can be acquired; to work with those instruments which are always at hand and familiar; to become expert in the use of simple means, rather than indifferent manipulators or puzzled worshippers of instruments wholly or partially beyond general comprehension; to start from an assured basis and to build from that *slowly* and steadily.

Examination of Chronic Cardiac Affections.

I come to what I hold to be the cardinal points in the daily examination of chronic affections of the heart, and place first and foremost:

1. *The Symptoms and Signs of Cardiac Failure.*

These are subdivided into two categories:

(*a*) *The Early Evidences of an Impaired Circulation.*—These are constituted by the symptoms which produce distress on exercise, and the three chief are fatigue leading up to exhaustion, breathlessness, and pain. In all patients, whether they are the subjects of actual or supposed cardiac disease, to know the tolerance of physical work is more than half the battle in arriving at a correct estimate of the case. A knowledge of the body's reaction to exercise in health, in ill health, and in the chief forms of heart disease is paramount. I do not mean the rise and fall of pulse rate or of blood pressure; they are of service; but those who measure the reaction in this way almost completely fail to appreciate the essential, which is to know the amount of work which must be undertaken to bring forth *distress*. This method is of such importance that I shall emphasize it by the following considered statements.

No man is competent to manage affections of the heart who has not a thorough grasp of this method, a method which is within the easy reach of every medical practitioner. He may have an exhaustive knowledge of electrocardiography, polygraphy, blood pressure, percussion, the stethoscope, and what not; as a practitioner he is better without that knowledge if the first knowledge is lacking.

Standing by itself the method is of more consequence than the remaining cardinal points which I shall name. That is so because no patient who has a normal exercise tolerance has grave heart disease, and because the gravity of the disease in a series of real heart cases is proportioned to the degree of distress produced by a given amount of work more nearly than it is to any other observable phenomenon within our knowledge.

(*b*) *The Signs of Cardiac Failure of the Congestive Type.*—These require no description beyond the statement that I refer to cyanosis and to engorgement as observed in the veins of the neck and in the liver. The exercise tolerance is never normal or near normal when these signs are present; they are late signs. When *signs* of failure appear the disease is in an advanced state.

2. *The Signs of Cardiac Enlargement and its Degree, without Attempt to Differentiate Dilatation and Hypertrophy.*

Time will not permit me to expand on this subject. I would say only that, in respect of these, palpation ranks before inspection and percussion, and that the chief sign is the position and extent of the maximal thrust and the structures it involves.

3. *Signs of Valvular Disease.*

Cardinally these comprise (*a*) signs of aortic regurgitation, which are obtained reliably as often at the pulse as at the base of the heart, and (*b*) signs of mitral stenosis, of which but two are valuable—namely, a diastolic thrill in the apical region and a diastolic rumble of low pitch, audible over the maximal thrust, and best heard, often only heard, in the recumbent posture after the action of the heart has been accelerated by exercise.

4. *The Presence or Absence of Fibrillation of the Auricles.*

If the heart is beating irregularly it should be ascertained whether fibrillation of the auricle is present or not. To obtain the last knowledge a few simple tests nearly always suffice.

(*a*) If there is constant quickening of the pulse during deep inspiration, fibrillation is not present.

(*b*) If the heart beats at a rate of 120 or over,* or can be induced by any means to beat at such rates, *while the pulse remains irregular*, fibrillation is almost certainly present.

* The faster the rate attained the more certain the diagnosis.

These tests are not exhaustive, but they are sufficiently so for general practical purposes. The remaining disorders of cardiac rhythm, either on account of their comparative rarity or because their significance in treatment is far smaller, cannot be regarded as cardinal.

5. *Infection.*

No examination of the patient is complete until the presence or absence of infection has been fully considered. The chief signs are:

(*a*) *Pallor*, especially when accompanied by sallowness or duskiness of the facies. This sign is of particular value in cases of aortic disease. Pallor in these cases is of ill omen.*

(*b*) *Palpable enlargement of the spleen*, which is not a reliable sign of engorgement of the viscera, but is usually a sign of active infection of the valves in cardiac cases.

(*c*) The presence of small petechial haemorrhages in the conjunctivae, buccal mucous membranes, or in the skin around the base of the neck and shoulders. They are far more frequent than has been suspected until recently, and should be searched for repeatedly in all sallow cardiac patients.

(*d*) *Clubbing* of the fingers, which when slight, is, so I am inclined to think, more frequently accompanied by infective endocarditis than by venous engorgement.

(*e*) The presence of *fever*, constantly or only from time to time.

(*f*) A *pulse rate* constantly over 90 or 100 while the patient rests and the pulse is regular.

(*g*) *Gradual but steady loss of weight.*

Signs (*a*) to (*e*) are more especially signs of infective endocarditis, a condition which in its subacute and chronic forms is much more widespread than is commonly believed, and terminates the lives of a goodly percentage of all cases presenting aortic regurgitation or mitral stenosis; signs (*f*) and (*g*) are also yielded by intoxications.

6. *When Evidence of Disease is found, its Etiology is to be taken into Consideration.*

It may be of rheumatic, syphilitic, or other infective origin, or it may result from senile changes. The etiology will control prognosis and treatment in no inconsiderable measure.

The Cardinal Points.

These are to my mind the cardinal points, for, in my experience, the great majority of all cases of chronic affections of the heart may be summed up efficiently and sufficiently in terms of them. In routine work instrumental examinations prove useful in checking or revising the bedside tests, but are essential only in a very small percentage of the patients; they prove in practice to be subsidiary methods of examination.

The value of the cardinal points is, so I think, scarcely to be overestimated. I have said that no patient possessing a normal capacity for exercise has grave heart disease; if his tolerance is normal, but he presents cardiac enlargement—considerable cardiac enlargement is always accompanied by a reduced tolerance of exercise—mitral stenosis, or aortic disease, there need be no immediate anxiety. In very rare cases fibrillation of the auricles or a congenital malformation may be seen in patients in whom exercise provokes no undue distress; in these cases also the prognosis is favourable. If a patient presents none of the symptoms or signs falling under the first three headings—that is to say, *if he takes exercise without undue discomfort*, has no cardiac enlargement, no aortic disease and no mitral stenosis—and his doctor tells him on that basis that his heart is sound, this opinion will be justified in all but very exceptional instances, and the chief exceptions are the rare cases of fibrillation of the auricles and of congenital heart mischief to which I have referred already, and rare instances of paroxysmal tachycardia; even in such cases the blunder would be a minor one, it would be a blunder of less consequence than gravely to warn a patient solely on the basis of a systolic murmur.

Briefly, the first three cardinal points are those which command consideration first; the last three assume cardinal importance in cases in which, on the basis of one or more of the first three points, disabling heart disease is already diagnosed.

Exercise Tolerance.

I come to an important consideration—namely, the value of exercise tolerance in the diagnosis of a deficient or overburdened myocardium. It is not a subject I propose to discuss here on a theoretical or detailed basis; my object is to formulate the following everyday rules which in my experience are at present sound:

(*a*) Where there is definite enlargement, or aortic disease, or mitral stenosis, or fibrillation of the auricles, then the safe course for doctor and patient is to attribute any undue distress on exercise to a cardiac lesion.

(*b*) In young subjects, if there is no such immediate evidence of heart disease as I have named in the last paragraph, then a deficient exercise tolerance should rarely, if ever, be ascribed primarily to the heart. To this class belong almost all patients who are supposed to be suffering from "heart strain," and a large number of patients incipiently infected with tuberculosis or chronically infected by pyogenic organisms.

(*c*) In elderly subjects, if there is no sign of structural disease, but a poor tolerance of exercise, the heart cannot be declared free of disease; on the contrary, the heart should be regarded as the probable seat of mischief. It is of course to this class that many cases of grave angina pectoris belong; but it also comprises many myocardial cases, in which the chief symptom is not pain but breathlessness or undue fatigue.

Some General Principles in Treatment.

Regulation of the Heart's Work and Rest.

The cardinal principle in treating chronic heart disease is suitably to regulate the physical strains thrown upon the organ. When structural disease exists it is for the most part incurable, and as such it should be recognized. When, as an accompaniment of the minor forms of disease—for example, suspected scarring of the mitral valves—the capacity to exercise is unimpaired, there is no need to curtail the patient's energies. But if structural disease is judged to have limited the heart's reserve power, *because* effort is followed by undue breathlessness, by undue fatigue or by pain, then the patient's activities, in work and in play, should be controlled; they should be so regulated that such symptoms of distress are not provoked.

It is not often good practice to limit the activities because some physical sign other than a sign of distress is discovered.

It is not good practice willingly to allow a cardiac patient to call forth his whole reserve, and consequently to suffer pain, undue breathlessness, or fatigue. Those acts, strenuous or leisurely, which bring distress are to be prohibited; in one case strenuous games or heavy labour, in another case quick movement on stairs or road, in another the act of standing, in another unnecessary movement in bed, is to be forbidden, according as much or little exertion provokes symptoms. A cardiac patient is unfit to be on his feet if, when up, he becomes breathless, experiences cardiac pain, or quickly tires. The presence of symptoms in a cardiac patient when he stands at rest or moves leisurely is the first and chief indication of bed treatment. Cardiac patients who are breathless while in bed are usually very gravely ill, and in these it is necessary to try with all our means to reduce the work they do by waiting on them hand and foot. A very important consideration in such patients is to induce long hours of sleep, for during sleep the greatest measure of rest is obtained.

There are three indications which call for the bed treatment of cardiac cases. The first and most important I have indicated; it is that distress is caused by the act of rising to the feet or by walking leisurely. The second is that active infection is thought or known to be present. The third is that drastic treatment with a drug of the digitalis group is required.

The chief value of digitalis lies in its power to control the ventricular rate when fibrillation of the auricles has come. In most patients in whom this disorder of the heart is discovered the ventricles beat rapidly, at rates of 120, 140, 160, and even more per minute. It is this rapid action which fatigues the heart, and digitalis, by lessening the rate, lessens the fatigue. The normal heart rate, while the body is at rest—to take approximate and convenient numbers—is 60 beats to the minute. Each ventricular cycle lasts one second; of this, one-third is occupied by systole, two-thirds by the resting period of diastole. The heart works one shift and sleeps for two. But if the rate is 120 beats to the minute, then each cycle lasts half a second; systole lasts a quarter of a second and so does diastole. Work and rest alternate in equal shifts. As the rate of beating rises, so is systole increased relatively at

* And is not due, as is commonly thought, to the actual regurgitation.

the expense of diastole. Very important is it, therefore, to reduce the heart rate where this is excessive. A chief cause of rapid heart action where heart failure threatens or has come is fibrillation of the auricles, and it is in this condition that digitalis acts so beneficially; it reduces and holds the rate within normal bounds.

The reduction of accelerated ventricular rate is the only important action of the drug upon the human heart of which we have knowledge. There are few, if any, instances of which we know with certainty in which digitalis acts beneficially, except cases of accelerated action; there are few instances of acceleration in which the drug produces unquestionable benefit apart from those provoked by fibrillation of the auricles. The principle of digitalis therapy—and when I speak of digitalis I include the allied drugs, strophanthus and squills—is that, administered to suitable cases, the heart, by means of it, obtains rest. The giving of this drug to unselected cardiac cases is much to be deplored. Those who regard digitalis as a cardiac stimulant mistake its character; its chief action is to rest the heart. *To the heart foxglove is not tonic, but powerfully hypnotic.* It extends the diastoles of the heart; it extends the period of sleep.

There is a direction in which medical men are much hampered in dealing with chronic heart disease. It is in trying to order the future lives of working class men to suit the heart's power of reserve. Many cardiac patients leave our hospital wards after a short period of rest, a period during which there has been much improvement of the heart's capacity for work. Yet these patients are but too often totally unfit to take up again those daily tasks in and by which they have already suffered. To tell a working class man that his former work suits him ill, to tell him that he must find new work of lighter grade, is good enough advice; but how often is it within the man's power to act on that advice? how often is it within the doctor's power to see that his advice is followed? We greatly need in this country a system by which disabled workers are placed and cared for in suitable employment. Cardiac cases are for the most part conspicuously willing workers, frequently too willing; there are many men doing heavy work in this country to-day, and at the same time surely, but may be slowly, dying of heart disease. It is a shameful thing that these unfortunates are put by hard necessity to tasks far beyond their endurance.

Work is good for cardiac cases, as it is good for men in whom the voluntary muscles of the body are ill conditioned, but only such work as falls well within the bounds of the heart's reserve is beneficial. It is a most important matter, and a matter very little attended to to-day in hospital practice, to test a man's capacity for work before he goes to his home; it is not sufficiently understood that discharge from hospital is read by many as a sanction to return to the old work.

Infection.

As infection is the chief cause of heart disease, in the stage of its inception, and in the stages of its advance, so, when we come to treatment, to stay the advance by removing the cause is a chief principle. The treatment of early syphilitic lesions of the heart by appropriate measures is a field as yet little explored, but one which is in promise fertile. To treat drastically local invasions by pyogenic organisms is clearly indicated, and of proved benefit in many cases. Even more important is it to guard against infection. Cardiac cases run very serious risks, risks which but too often cannot be avoided, by contact with those suffering from some infection of the respiratory tract. Nevertheless, much harm may be avoided by timely warnings of dangers, met in the family circle, in crowded buildings and in ill ventilated rooms, by the prescription of the open air régime, and, in bed cases, by rigorous separation from febrile cases.

REFERENCE.

[1] *The Soldier's Heart and the Effort Syndrome.* London: Shaw and Sons. 1918.

THE forty-third annual report of the Boston Medical Library recently issued states that on December 31st, 1918, there were 98,097 volumes catalogued and on the shelves, besides several thousands of others not yet catalogued. A number of current German periodicals were received after an interval of nearly three years. The number of foreign books received was small.

REMARKS ON THE FREQUENCY, DIAGNOSIS, AND TREATMENT OF CHRONIC PANCREATITIS.

By JAMES H. NICOLL, M.B.,

HONORARY LIEUT.-COLONEL R.A.M.C.; CONSULTING SURGEON, BELLAHOUSTON ORTHOPAEDIC HOSPITAL; RECENTLY SURGEON, WESTERN INFIRMARY, GLASGOW.

FOR some time it has been generally accepted that in many cases of disease in the abdomen a pathological tripod stands in that cavity with feet implanted in the appendix, biliary apparatus, and gastro-duodenal tract. The coexistence, or the sequential development in any order, of appendicitis, cholecystitis or cholangitis, and gastric or duodenal ulcer, is familiar to clinicians and surgeons. Opinions vary as to whether one or other of the three stands in causal relation to the others, or all three derive from a common and central source in the form of catarrhal inflammation of stomach and bowel. Much work has been done, and remains to be done, on the question.

Meantime, as the records of cases accumulate, it is becoming evident that the tripod is being gradually replaced in the problem by a quadrupedal figure. Pancreatitis is claiming increasing attention.

In the issue of the JOURNAL for July 12th last Sir Berkeley Moynihan publishes a very instructive lecture on "Disappointments after Gastro-enterostomy," in which he quotes me on one of them. In my experience chronic or subacute pancreatitis ranks next in order to chronic appendicitis and disorders of the biliary apparatus on the list of affections which mimic gastric and duodenal ulcer, and for which gastro-enterostomy is erroneously performed, with resulting disappointment.

Clinically pancreatitis occurs in two widely differing types—acute and chronic—which often prove equally elusive of diagnosis.

Acute pancreatitis (necrotic, haemorrhagic, and suppurative) is rarely suspected until discovered at an autopsy or in course of a laparotomy undertaken for a supposed perforated gastric or duodenal ulcer, a fulminating appendicitis, or other similar acute abdominal affection calling for operation. The case commonly goes on to the operating table a surgical puzzle and leaves the hospital by way of the mortuary a surgical disaster, though prompt operative treatment is claiming an increasing number of successful results.

Chronic pancreatitis (catarrhal and, later, cirrhotic) may, especially in its later phases, present suggestive diagnostic signs. Many cases, however, more especially of the earlier and slighter types, present no such signs, and the disease closely mimics other abdominal disorders, particularly duodenal and gastric dyspepsia and ulceration and affections of the biliary apparatus, for which supposed diseases the appropriate operative measures are apt to be erroneously carried out. The error in the case of gastro-enterostomy is unfortunate, for, while gastro-enterostomy may do the patient no harm in some cases, in others it aggravates his distress. In either event the operation results in disappointment. In the case of the biliary apparatus the error may ultimately be harmful or helpful; and this raises the whole question of the technique of cholecystectomy. If in a case of supposed cholecystitis which is really one of pancreatitis, or in a case in which pancreatitis complicates cholecystitis, the gall bladder is only partially removed and the cystic duct, and possibly also the common duct, drained, the pancreatitic patient may benefit, though not to the degree possible had his pancreatitis been diagnosed and suitable dietetic and medicinal treatment prescribed. If, on the other hand, complete cholecystectomy with closure of the duct is carried out, all chance of surgical treatment of the pancreatitis is, for the time being at least, lost. Pancreatic drainage can only be carried out later by a much more serious operation and after valuable time has been wasted. It should be an unvarying rule not to remove the entire gall bladder without drainage of the ducts unless the surgeon is satisfied that pancreatitis is absent.

Diagnosis of Chronic Pancreatitis.

Chronic pancreatitis is of more frequent occurrence than has generally been supposed. It commonly complicates

catarrhal affections of the duodenum, of the biliary apparatus (whether the seat of cholelithiasis or not), and of the vermiform appendix and colon, but apparently it may exist as an affection standing alone. Its diagnosis is nearly always a matter of difficulty. Frequently the difficulties prove insuperable until an excised portion of the gland is examined microscopically. Even after the surgeon has the organ between his fingers and thumb during an exploratory laparotomy uncertainty often remains, though in many cases such palpation goes far to settle the diagnosis.

Two recent contrasting cases may be quoted. Both were operated on for supposed duodenal ulcer, in the expressed diagnosis of which I had concurred. On operation no lesion of the duodenum was found, nor was any other explanation of the symptoms discovered till the pancreas was examined. In one case the gland to touch was clearly cirrhotic, in the other it felt normal. A small wedge of the gland was removed in each case, and the specimens were microscopically examined by Dr. G. Haswell Wilson. The hard gland proved to be the seat of "cirrhotic changes with small areas of necrosis." The apparently normal gland showed "typical haemorrhagic pancreatitis with areas of necrosis in the substance of the gland."

During the past eleven months I have operated on seven cases of supposed gastric ulcer, duodenal ulcer, or cholecystitis in which neither ulcer nor cholecystitis was found, but in all of which the microscope revealed the presence of pancreatitis. In all of these cases the diagnosis of ulcer or of cholecystitis, with which I had agreed, rested on the investigations of medical colleagues well qualified to form an opinion. In none of the seven was there anything to suggest pancreatitis until operative exploration revealed its existence. In one of them gastro-enterostomy had previously been performed without, of course, relief of the symptoms.

In the diagnosis of pancreatitis the following points may prove helpful:

Glycosuria (islands of Langerhans affected?). This characteristic symptom is, unfortunately, present in comparatively few of the cases.

Large light coloured greasy *stools*, or pale fatty diarrhoea. These equally suggestive symptoms are also found in a minority only of the cases.

Excess of *fats* and *fatty acids* in the stools as demonstrated microscopically. Except in advanced cases this test is apt to fail in definiteness. Much depends on the patient's diet.

Jaundice is not uncommon. Its presence naturally directs attention to the biliary apparatus rather than to the pancreas. It is, however, a reliable indication of the need for operation, and, if this is carried out thoroughly, pancreatitis if present, either alone or as a complication of cholecystitis or cholangitis, is discovered.

Schmidt's test for undigested tissue nuclei (consumed as food) in the stools.

Wohlgemuth's test for starch-splitting ferments in the stools. In a case at present convalescing after operation for confusing, though pronounced, abdominal symptoms, Dr. Hugh Morton had in April last, by employing Wohlgemuth's test, discovered that the pancreatic secretion was defective. The only lesion I found in the exploration was a cirrhotic pancreas, on an excised portion of which Dr. Haswell Wilson reports as showing "advanced chronic interstitial pancreatitis."

The two last-mentioned tests may prove valuable. As yet their reliability in the early or slighter cases remains to be proved, and it is the slighter cases which so closely mimic other abdominal affections.

"*Fat Necrosis.*"—The discovery during exploratory abdominal section of the characteristic patches on the pancreas, peritoneum, and other abdominal structures leads at once to a diagnosis of pancreatic disease. Some years ago, assisted by Dr. Chas. Cuthbert, I opened the abdomen of a patient who had been ill for five days and whose case had been diagnosed as intestinal obstruction by one physician and perforation of gastric or duodenal ulcer by another. An exhaustive search failed to discover any lesion whatever (at that time I was not so alive to the necessity of a routine examination of the pancreas in obscure abdominal cases), and I prepared to close the abdomen. On eversion of the parietal peritoneum with forceps, preparatory to suture, patches of fat necrosis were at once discovered limited to the inner aspect of the anterior parietes, and therefore not visible during the exploration. "Fat necrosis," which is pathognomonic of pancreatic disease, is, unfortunately, rarely present, except in cases in which the outflow of the pancreatic secretion is obstructed. It is absent in the larger number of cases of pancreatitis.

Palpation of the Pancreas.—This may reveal a cirrhosis so hard as to simulate carcinoma. Such a case occurred recently in my practice. In this case Dr. Roy Young, who co-operated with me, concurred in the view that the pancreas was the seat of cancer. Yet microscopical examination of an excised portion proved the presence of pancreatic cirrhosis, and not cancer. In other cases palpation discovers the bulky soft outlines and consistence of a gland the seat of catarrhal pancreatitis. In many cases in which the gland to palpation seems normal microscopic examination reveals the existence of pancreatitis.

Resection of a Small Wedge of the Gland for Microscopic Examination.—This has of late become in my practice almost a routine procedure in cases in which there is any doubt whatever as to the actual cause of the abdominal symptoms present. The results have convinced me that chronic pancreatitis is a common disease, and that meantime its diagnosis by other means is not infrequently impossible. Failure to diagnose it, whether it exists alone or as a complication of other diseases, entails various misfortunes. If may lead the *surgeon* during an abdominal exploration to do nothing, whereas drainage, by way of cholecystostomy, choledochostomy, or, preferably, cholecystenterostomy, would constitute the first step in effective treatment. It may lead the surgeon to do an inefficient operation—namely, a complete cholecystectomy without drainage. And it may lead the surgeon to perform an entirely erroneous operation, such as removal of the appendix or performance of gastro-enterostomy. Further, it deprives the *physician*, in the subsequent course of the case, of that precise knowledge on which medicinal and dietetic treatment could be successfully based, and of the opportunity of testing definitely the value of such tests as Schmidt's and Wohlgemuth's. Lastly, it deprives the *patient* of the mental comfort of knowing that, though his convalescence may be long (and chronic pancreatitis is a tedious trouble) his case is clear, and cure to be looked forward to.

Operation.

The pancreas may be reached for exploration in the course of a laparotomy by the gastro-hepatic, the gastro-colic, or the trans-mesocolic route, of which the gastro-colic is probably the most generally useful. The small gap left in the gland after excision of the wedge is closed by sutures inserted by an intestinal needle, and covered over by omentum tacked on by further sutures. Accurate closure in this way secures all haemorrhage, and prevents leakage into the peritoneum of the glandular secretion, which, in many of the cases, is not only infective, but in itself capable of necrosing effects.

Treatment of Chronic Pancreatitis.

Pancreatitis apparently often forms one of the four feet of the pathological intra-abdominal figure referred to above. Treatment, therefore, of any accompanying, and possibly causative, mischief in biliary apparatus, gastro-duodenal area or appendix, is essential. Pancreatitis itself, whether existing alone or accompanying other of the associated affections, is a persistent trouble, and its treatment is best carried out by the combined efforts of surgeon and physician. On the surgeon rests in many of the cases the ultimate diagnosis by means of excision of a portion of the gland for microscopic examination. On him also rests the initiation of the treatment, by drainage of the inflamed gland. With the physician remains the direction of the later stages of treatment on dietetic and medicinal lines, a much more definitely purposive effort after the diagnosis has been cleared up, the gland drained, and associated diseases dealt with.

Drainage of the pancreas is most often carried out by way of the biliary apparatus—cholecystostomy, choledochostomy, or preferably, when the conditions permit, cholecystenterostomy. Direct drainage of the duct of Wirsung is adopted in cases in which pancreatic calculi are present or obstruction of the duct suspected. Where such drainage is established the tube should be fixed as accurately as possible in the duct or up against the

opening made in the duct, and the junction reinforced by drainage wicks of gauze brought out through the abdominal incision, the whole arrangement being surrounded and isolated by omentum carefully fixed by sutures. The gauze acts as a drain for any leaking pancreatic secretion, and further sets up firm omental adhesions before its withdrawal at the end of two or three days. Neglect to isolate the drainage aperture in the way indicated may lead to serious or fatal results, for the secretion is not only in itself capable of necrosing effects on the peritoneum, but is in addition germ-infected in many cases of pancreatitis. Drainage of the pancreas by incisions into the gland itself, while necessary in desperate cases of acute pancreatitis, is of doubtful expediency in chronic cases. If employed, it should be carried out only by means of the freest combination of large rubber tubes and ample gauze packing carefully surrounded by omentum, and, if at all possible, by the gastro-colic route, which best lends itself to such an arrangement.

THE CAUSATION AND TREATMENT OF RICKETS.*

BY

ERIC PRITCHARD, M.A., M.D.OXON., M.R.C.P.LOND.,

PHYSICIAN TO THE QUEEN'S HOSPITAL FOR CHILDREN AND TO THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.

IT is to my mind open to question whether the time has not now arrived for a reconsideration of the whole subject of rickets—its definition, its etiology, and its treatment.

The following may be taken as a typical definition of the disease:

> Rickets is a chronic general disorder of nutrition occurring during infancy from faulty diet and hygienic deficiencies. It involves the whole body, but its most obvious effects are recorded in the skeletal system.

This definition, and the majority of those with which I am acquainted, appear to me to confuse cause and effect. If the term is not confined to the bony changes, but covers also all the various forms of malnutrition which ultimately terminate in rickets, the name means little else than a generic one for ill health in infants and young children. Some authorities classify such symptoms as sweating, muscular weakness, laxity of ligaments, delayed teething, spasmophilic manifestations, and tendencies to catarrhs as rachitic. Francis Glisson included in his famous monograph on rickets every symptom and childish ailment which was known in his day.

The view which I propose to develop in this lecture is that practically all varieties of malnutrition occurring during infancy and early childhood tend to terminate in rickets, provided they are sufficiently severe or long enough continued. They should not, however, be regarded as evidence of rickets unless they are actually accompanied by the typical changes in bone which are characteristic of the disease.

Each variety of malnutrition has its own particular etiology and requires special lines of treatment, and cannot be dealt with rationally on the cut-and-dried lines that are usually advocated for rickets itself.

Shortly stated, the theory which I wish to propound is that the essential and central feature of rickets is the want of calcification or mineralization of developing bone, and that this in its turn is due to the existence of requirements for calcium, which for the time being are more urgent than those of developing bone. These urgent requirements are the necessity for neutralizing acid bodies in the blood; in other words, to neutralize or compensate an existing acidosis. My argument is that all chronic conditions of malnutrition, of whatever kind or from whatsoever cause arising, finally terminate in an acidosis, and that all claims on alkaline bases arising in connexion with the neutralization of this acidosis must be satisfied before those of developing bone are attended to.

It is not difficult to understand why all forms of malnutrition tend to end in a condition of acidosis, for in all cases, though in various ways, metabolic or oxidation processes are interfered with and curtailed. Any interference with the due oxidation of food elements to their normal end-products, carbonic acid, urea and water, will conduce to the formation of semi-oxidized bodies of large molecular size and acid in reaction, which must be neutralized as quickly as they are formed to prevent a dangerous rise in the hydrogen ion concentration of the blood. It is in the satisfaction of these claims for alkaline bases that the injury is done to growing bone. One of the direct causes of an acidosis is a disturbance of the relationship between the caloric value of the food consumed and the actual output of energy, either in the form of heat or of work. If more food is consumed than is required for the physiological purposes of the body there will be an attempt to adjust this want of balance by excreting part of the food in an unoxidized, or semi-oxidized, condition. Any condition, therefore, which tends to diminish the efficiency of the human body as a working machine will tend to reduce the physiological demands for food, and so renders a pre-existing correct diet thereby excessive, or relatively excessive.

Most of the recognized etiological factors of rickets are factors which interfere in some way with the metabolic or oxidizing processes of the body—in other words, interfere with the proper utilization of food. Any condition, therefore, which interferes with the supply of oxygen will tend in the long run to be a factor in the production of rickets. So also will be any condition which interferes with the output of work—as, for instance, the poisoning or degeneration of nerve cells. Anything also which unduly interferes with the dissipation of heat—as, for instance, warm rooms or excessive clothing. The withholding of surface stimulation, such as is afforded by sunshine and currents of fresh air, will also have the same effect. Most of the etiological factors of rickets are included in this category of causative factors of an acidosis; and, in the light of these explanations, I propose now to review some of the theories on the pathogenesis of rickets which have been formulated from time to time, and which for the most part have been unwarrantably rejected as unsatisfactory, because, although possibly applying to certain cases, fail to do so to all. I shall hope to show that while there are different theories required to explain the various forms of malnutrition which are fore-stages in the common terminal result—namely, the production of an acidosis—there is only one explanation of the want of calcification of bone, and that is the urgent requirement of the body to have the acidosis neutralized at the expense of the alkaline reserves of the blood, reserves from which growing bone would otherwise draw its mineral material.

The first theory to be considered is that of a *deficiency of lime in the food*. It is clear, apart from any experimental proof, that without lime bones cannot be formed, but since there is an adequate supply of calcium in breast milk, and an excess of this base in cow's milk, it is obvious that want of this element cannot *per se* be the explanation of rickets in the majority of cases. None the less, a deficiency of lime is quite probably the true explanation of a small minority of cases in which certain patent foods are exclusively employed.

Defective absorption of lime is a more reasonable explanation, and colour is lent to this theory because in rickets an increased output of lime in the faeces can practically always be proved.

It is easy to understand that any available base such as calcium existing in the intestinal contents will be readily seized to neutralize any acid bodies formed as the result of putrefactive or fermentative changes in the bowel. It has been denied that this is the true explanation of rickets, for the reason that the administration of supplementary supplies of calcium salts in rachitic conditions is followed by an equivalent output of calcium in the urine. This to my mind proves nothing, for if under such conditions excess of calcium is absorbed into the blood, it may well be utilized for the neutralization of acid bodies coexisting in the blood. It is interesting to note that soap stools are very common in rickets, and these soaps consist largely of fatty acids in combination with calcium, a fact which is very suggestive of the occurrence of an excess of fatty acids in the bowel in the conditions which predispose to rickets. But whether calcium is eliminated in excess or not in the bowel, there is abundant evidence to show that it is eliminated in excess either in the faeces or in the urine, or in both.

* A lecture delivered before the Fellowship of Medicine at the Royal Society of Medicine, October 1st, 1919.

Intestinal intoxication has been regarded as an important factor in rickets, and there can be little doubt that there are many reasons for accepting this as one of the causes. Toxaemias of this kind are responsible for serious poisoning of the nervous system, for nerve cell degeneration, and for functional impairment of the organic functions in general, and for those of the muscular system in particular. The fact that severe rickets can occur without evidence of intestinal intoxication does not militate against the view that it does so in a certain number of cases.

Defective action of the endocrine glands has been suggested by many observers as the *causa causans* of rickets. There is much evidence to support the view that disturbances of the thyroid, parathyroid, adrenal, or pituitary glands are occasionally concerned in the rachitic processes. It is impossible to believe that such disturbances should be entirely absent in the great variety of conditions of malnutrition which ultimately cause unequivocal symptoms of rickets; but it is extremely improbable that in so common a disease as rickets any one glandular disturbance can be regarded as the primary factor. Moreover, rickets is a short-lived disease, while disease or disturbance of the functions of any of these glands is liable to persist. That the thyroid apparatus is concerned in calcium metabolism cannot be doubted; moreover, hyperthyroidism is apparently a compensatory phenomenon in septic conditions which may in themselves be a cause of acidosis and rickets. The adrenals undergo degenerative processes in those conditions of malnutrition which follow on deprivation of the accessory food factors (McCarrison).

Cassowitz believes that *deleterious respiratory influences*, or bad air (odour of the poor), play a direct part in the etiology of rickets, and bases this hypothesis on the rise in the incidence curve of rickets after the winter months. Foul air must necessarily depress vital functions, and so also must want of stimulation by currents of fresh cold air (Leonard Hill). Hence it would be contrary to my own theory if want of ventilation did not play an occasional part as a causative agent.

Dr. L. Findlay has conducted some experiments on animals to prove that want of muscular exercise plays an important part in bringing about the rickety condition. This entirely coincides with my own practical experiences in connexion with the management of infants. Exercise creates a demand for energy which is greater than all the other organic demands of the body taken in combination. If there is no output of kinetic energy, as in debilitated states, or from restraint owing to tight clothing, the physiological uses of food will be seriously restricted. There will be lessened incentive for oxidation processes, incomplete combustion, and a corresponding output of acids of large molecular size—in other words, with restriction of exercise an otherwise physiological dietary becomes at once relatively excessive.

Within recent years great importance has been attached to the part which the accessory food factors (vitamines) play in the determination of rickets. Three distinctive varieties of malnutrition have been recognized as due to starvation in respect of the three vitamines so far discovered. These are, first, infantile scurvy from want of the water-soluble accessory factor "C"; secondly, arrest of growth for want of the fat-soluble accessory factor "A"; and thirdly, a variety of malnutrition analogous to beriberi, and which is due to the want of the antineuritic vitamine, the water-soluble "B" factor contained in the cortical part of cereal grains. This latter form of malnutrition only arises in infants in whom decorticated cereal foods are largely employed. According to my view any one of these forms of malnutrition will ultimately lead to an acidosis, and consequently to the rickety condition, but in each case the distinctive features of the special variety of malnutrition will lend special character to the clinical picture. Hopes have recently been raised that want of the fat soluble vitamine contained in animal oils is *the* cause of rickets; if this hope were justified the distribution of a little cod-liver oil would free all civilized countries from the scourge of one of the commonest diseases. It is perhaps unnecessary to point out that if this hypothesis be true it is difficult to explain the reason for rickets amongst well-to-do children fed on an excess of cream.

Acid conditions of the blood or the excessive formation of acid bodies has frequently been claimed to be the cause of rickets. As I have already indicated, an acid condition of the blood is incompatible with life, and the most delicate and efficient mechanisms exist for the maintenance of a constant and uniform degree of hydrogen ion concentration. No free acids can exist in the blood; they are at once neutralized at the expense of the alkali reserves. The first of these theories was that of Wachsmuth, who believed that the trouble in rickets was due to an excessive production of carbonic acid, which he believed was capable of depriving bone of its mineral rights. This theory is unworthy of serious consideration in view of simple physical and physiological knowledge. The lactic acid theory is quite inadequate to explain all the phenomena connected with the production of rachitic changes in the bone. Lactic acid is certainly produced in excess under conditions of restricted oxidation (anoxaemia), but this acid only represents one among many acids of large molecular size which are inevitably produced under these conditions. I pointed out as early as 1901, in a paper read at the British Medical Association's annual meeting held at Cheltenham, that the relative overfeeding of infants must necessarily lead to the production of a large number of acid bodies which would draw upon the alkaline reserves of the blood, and thus tend to produce a condition of acidosis. Since then Stoeltzner has elaborated his "oxypathic theory" of rickets which is very much the same as my own, although he does not harmonize it satisfactorily with all the known etiological factors of rickets.

An argument commonly urged against the acidosis theory is that it is inconceivable that acid bodies could exist in the blood sufficiently strong to dissolve the fixed salts out of bone. This is quite beside the question as far as rickets is concerned, for in this disease we are dealing with the withholding of the mineral material from bone which is in process of formation, and not with its extraction from completely developed bone, as is the case in osteomalacia, for instance. Further, it has been argued that if in rickets calcium is used up in neutralizing acid bodies, the amount of calcium in the blood should show a noticeable falling off in its calcium content, which has not, so far, been capable of demonstration. No doubt calcium would be among the last of the basic elements which constitute the alkali reserve in the blood to be used up for neutralization purposes; but in rickets there is an increase of the calcium in the urine, proving that calcium is to some extent used up and withheld from its normal destinations, even though there is no diminution in the blood.

Quite recently it has been shown that in tetany, which may be regarded as evidence of a severe degree of acidosis and a phenomenon of advanced rickets, there is a demonstrable falling off in the calcium content of the blood,[1] a piece of evidence which strongly supports my views on the etiology of rickets.

In any long-continued acidosis it is logical to expect that among other elements iron itself will be seized upon for neutralization purposes, in which event a corresponding amount of iron must be withheld from developing blood corpuscles. This may explain a coexisting anaemia, and the compensatory activities of the red marrow and other blood-forming centres. On this explanation we can understanding the beading of ribs, and the enlargement of the epiphysis of long bones.

Many investigations have been made to discover a bacterial origin of rickets. This seems to me a useless waste of time, for all infective and septic processes lead to a condition of acidosis, and there is no need to search for a specific bacillus of rickets when practically any variety is capable of producing the disease. Chronic infections, such as tuberculosis, syphilis, malaria, and those due to the *Bacillus coli*, almost invariably lead in infants to rachitic manifestations.

From the foregoing it is obvious that many etiological theories are required to explain the causation of the many varieties of malnutrition which are antecedent to the rachitic changes in the bones, but all of them lead to this goal through the common avenue of acidosis. From a practical point of view it is most desirable that we should recognize what are the common and what are the rare etiological factors which finally lead to the bony changes of rickets.

In different countries and under different conditions varying factors will be found to predominate. In this country, and especially among the urban population, I imagine that catarrhal and other infections play a most important rôle. Impure air, want of sunshine, want of

exercise, and want of surface stimulation—in other words, bad housing conditions—also play important parts, and conduce to that condition of relative overfeeding which I have insisted on as the essential element in leading to acidosis. Among the well-to-do classes overfeeding and under-exercise are the dual causes.

The treatment of rickets naturally resolves itself into prophylactic and remedial measures. Prophylaxis is concerned with the avoidance of those malhygienic conditions which favour the development of the various forms of malnutrition which have already been described. Correct dieting is essential to avoid catarrhal conditions of the bowel, intestinal toxaemias, and insufficiency diseases, all of which by their respective routes lead to the common goal—acidosis. Food in excess, even though otherwise beyond criticism, is as dangerous as unsuitable food itself, for in the long run it necessitates a short-circuiting of the metabolic processes and the production of acids of large molecular size, such as uric, oxalic, butyric, lactic, propionic, and to some extent of such powerful acids as sulphuric and phosphoric, all of which must be neutralized at the expense of ammonium and other alkali reserves of the blood including calcium. Any condition which interferes with oxidation will similarly restrict the completeness of the metabolic processes, and among them must be included want of fresh air, mechanical obstruction of the respiratory passages by adenoids, embarrassments of the respiratory movements, as well as all other conditions which lead to anoxaemia. Want of stimulation of the skin surface by cool air, good ventilation, or baths, will similarly restrict the oxidation processes.

Want of exercise—as, for instance, by the limitation of muscular activities, such as those concerned in playing, kicking, rolling, and walking—will also predispose to the same results; in fact muscular exercise is the grand prophylactic against rickets. Unfortunately, in the majority of cases of malnutrition which terminate in rickets, active exercise is limited owing to nervous depression, nuclear degenerations, and muscular debility, but none the less every opportunity to ensure free exercise must be provided for all healthy infants. No matter how correctly fed, or how good the other hygienic conditions, infants who are swaddled up in tight clothing so that the movement of the limbs is restricted invariably become rickety, unless the diet is correspondingly reduced.

The avoidance of infections, catarrhal and otherwise, is an essential element in prophylactic treatment, but more easily enjoined than carried out. In healthy, well-fed infants, infections, though they inevitably occur, soon run their course, and it must be remembered that it is chronic and not short-lived acute attacks that lead to the chronic conditions of acidosis which deprive growing bones of their mineral elements.

As for remedial treatment, this depends largely on the correct diagnosis of the cause of the acidosis, on the treatment of the acidosis itself, and on the management of the complications arising from the softening of bone and of the emergencies which are secondary to the acidosis.

The more common causes of the acidosis of rickets have been already indicated, and it is unnecessary to describe in detail the specific measures called for in each particular case. The treatment of the acidosis is by no means a simple task, especially in severe cases with air-hunger, Cheyne-Stokes breathing, tetany, laryngismus stridulus, or convulsions. There are, however, certain important indications, which are as follows:

1. To restore the reduced alkali reserves of the blood.
2. To ensure a free supply of oxygen, and relieve the embarrassment of the respiratory centres.
3. To raise the blood pressure.
4. To promote the excretory functions of the kidneys.
5. To suspend temporarily the intake of food.
6. To restore muscular tone by massage and shower baths.

These, with the exception of No. 6, are the measures which have been empirically proved to be efficacious in such extreme cases of acute acidosis as occur in cholera infantum, diabetic coma, and uraemic conditions.

The reduced alkali reserves and the fall in blood pressure can both be relieved by the intravenous or subcutaneous injection of isotonic saline, or, better, by a 5 per cent. solution of sodium bicarbonate and sodium citrate. Oxygen can be supplied by inhalations, best by Haldane's continuous method (see BRITISH MEDICAL JOURNAL, July 19th, 1919, p. 70).

The excretory functions of the kidneys can be promoted by such cardiac stimulants as camphor, digitalis, strychnine, alcohol, caffeine, etc., or by such direct stimulants as scoparium and turpentine.

The treatment of deformities and mechanical disabilities due to softness of bone need not here be considered beyond referring to the uselessness of splints for the correction of deformities of the legs, if these splints interfere with the one grand prophylactic—namely, the taking of exercise.

The treatment of emergencies, such as laryngismus stridulus, convulsions, and tetany, is as a rule satisfactory and immediate, if conducted on rational lines directed to counteract the effects of a severe acidosis.

In all cases of rickets in which the nervous symptoms are prominent I have found that phosphorated cod-liver oil (1 in 10,000) affords most excellent results. The phosphorus may help to restore degenerated nerve cells. I cannot, however, regard it as a general specific for all forms of rickets, as has been claimed by certain German authorities.

In conclusion, I would once again emphasize that all varieties of malnutrition, from whatsoever causes arising, in infants ultimately lead to a condition of acidosis and the characteristic bony changes. Each variety has its own etiology and requires a special line of treatment.

REFERENCE.

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RAT DESTRUCTION.

BY

F. NORMAN WHITE, M.D., C.I.E.,

MAJOR I.M.S., LATELY SANITARY COMMISSIONER WITH THE GOVERNMENT IN INDIA.

In view of the interest now being taken in England in the subject of rat destruction I have been asked to place on record some of the results of Indian experience, more especially as regards rat poisoning. It is almost unnecessary to remind the reader that the "rat problem" has been for many years, and is, a problem of the highest public health importance in India; bubonic plague, so essentially a rat disease, has been responsible for upwards of ten and a half million deaths since the invasion of India by plague in 1896.

Though Indian experience may well be of assistance to those undertaking rat campaigns in England, it must not be forgotten that in India our greatest efforts have to be directed against the black rat, *Rattus rattus*, whereas in England the brown rat, *Rattus norvegicus*, is responsible for most of the damage done. The habits of the two species present striking differences. *Rattus rattus*, formerly the common rat of England, is now rarely seen outside our ports and large towns; its disappearance is generally ascribed to the advent of *R. norvegicus*. It would seem probable, however, that changes in the customs and habits of the people have had quite as much, if not more, to do with the elimination of *R. rattus;* both species flourish exceedingly in certain eastern cities such as Bombay, where there does not appear to be any marked antagonism between the two species. Their haunts differ it is true, but they have their common meeting places.

This short article deals chiefly with rat destruction by means of poison. It must not be concluded that this, or all the means of destruction put together, is the most important measure that can be adopted in our efforts directed to the elimination of the rat. The protection of foodstuffs from the depredations of rats; efficient scavenging; the proper construction of warehouses, stores markets, shops, granaries, dwelling houses, etc.—all such measures are likely to prove of more permanent benefit and even cheaper in the long run. A direct attack on the rat involves a constant struggle against the remarkable fecundity characteristic of all species of the genus. As a temporary measure, however, rat destruction may be an imperative necessity, notably in the event of a threatened outbreak of a rat-borne disease.

Many well-intentioned and energetically-prosecuted rat campaigns in India, and doubtless in this country also, have yielded disappointing results owing to too little

attention having been paid to the habits and customs of the particular variety of rat against which war was being waged. This is a matter of very considerable importance. As in so many other matters, chief reliance has been placed in traditional methods, which are by no means always the most efficient. It is commonly stated, for instance, that rats are omnivorous and thrive best on a varied diet. Some go so far as to advocate that the baits of traps and the vehicle for poisons should consist of substances not readily obtainable by the rat. It is true that rats will eat almost anything if driven by hunger to do so; they will become cannibalistic in captivity if deprived of water; but *R. rattus*, at any rate, is for choice almost incredibly conservative in its diet, dislikes variety, and is a strict vegetarian. As a result of some most interesting observations carried out in Poona by Dr. Chitre, in an investigation started by Major Kunhardt, I.M.S., it was shown that rats from various parts of India exhibited a marked preference for the food grain, or dough made from the food grain, which formed the staple food of the human population of their place of origin. In comparison with this all other foodstuffs were comparatively unattractive. Moreover, the rats displayed an astonishing aptitude for detecting dough made from the grain to which it had been accustomed, when several varieties were offered to it in exactly similar form. For example, the Poona rats are "bajri" eaters, the Madras rats chiefly rice eaters, and so on. The experiments were most carefully carried out on a very large scale and under conditions as natural as the limitation of such an experiment permit; the results were confirmed time and again and are beyond dispute. The addition of such substances as cheese, for which rats are popularly supposed to have a marked predilection, sugar, various essential oils, and numerous other substances were tried, with the result that none of the flavoured baits were as attractive as the plain dough baits. Even butter and other fats and oils detracted from the attractive value of the plain dough bait; such substances are commonly recommended as desirable ingredients of poison baits.

The bearing of such observations on the efficient prosecution of a rat campaign, be it by means of trap or poison, needs no elaboration.

A comprehensive knowledge of the habits of rats is likewise essential to the designing of "rat-proof" dwellings and buildings if such are to be kept rat-free. *R. rattus* is unable to jump higher than 2½ ft.; it is unable to circumvent a horizontal ledge of 9 in. provided this be smooth on the under surface; it cannot live on dry grain without a certain amount of water to drink; such points are all important. I am unable to quote similar facts about *R. norvegicus;* they could, however, easily be ascertained experimentally.

All the commonly recommended rat poisons, and several others, were subjected to investigation, with the result that none were found as efficient as barium carbonate, which is one of the very few poisons that the rat fails to detect. It is safe to handle, and in the amounts necessary for use it is not dangerous to children. It was found that 15 grains were necessary to kill a cat, 20 grains to kill a chicken, and that dogs could withstand a dose of 140 grains. Phosphorus poisons are relatively distasteful however offered.

In India poison baits are recommended to be made as follows:

One pound of barium carbonate is mixed thoroughly with three pounds of flour made from the grain which forms the staple food of the human population of the locality in which operations are to be carried out. The mixture can conveniently be made in an enamelled basin. Sufficient water is added to make the whole into a fairly firm paste. The resulting mass is sufficient for some 2,300 baits each containing 3 grains of barium carbonate. Clean hands and dishes are necessary to avoid the addition of extraneous taste and odour which might diminish the attractiveness of the baits.

Baits should be made fresh each day or at most every second day; a hard stale bait is very rarely eaten by a rat. The baits are distributed in groups of four in such parts of a building as are frequented by rats; this is best done in the evening. A record should be kept of the number of baits so distributed and the number taken. During poisoning operations special efforts should be made to keep all food usually available for rats covered up.

I make no reference to the use of bacterial viruses for the destruction of rats. I imagine such means of rat destruction have but a limited vogue at the present day. Quite apart from any possible dangers attending their use, experience of plague makes one sceptical of their effecting anything but a very temporary reduction in the rat population. No bacterial infection of which we have knowledge is more readily communicable from rat to rat or more fatal to rats than is plague. Plague has flourished among the rats of India for twenty-three years; nevertheless there were sufficient rats in India in 1917–18 to determine the fourth worst plague epidemic on record.

HERPES ZOSTER OF THE GLOSSO-PHARYNGEAL NERVE.

By C. T. NEVE, M.B., B.S., F.R.C.S.,
CROYDON.

The following case presents several points of interest bearing on the pathology of herpes:

On July 12th Miss M., aged 57, complained of sore throat, which she attributed to a long and cold motor drive two days previously. She was first seen on July 14th. She had that day vomited, was feeling ill, and complained of vague pains behind the left ear and in the back of the neck on the left side. The temperature was 100°, there was paralysis of the left facial nerve (peripheral type), the tongue was furred, especially on the left side where it presented a patchy appearance, the soft palate and fauces were reddened, the former presenting a herpetiform eruption, the vesicles being covered with sodden epithelium. One of these vesicles was just to the right of the mid-line. Taste was normal. The skin of the auricle was unaltered.

On July 17th the temperature had fallen to normal, and the tongue was nearly clean; vesicles were still present, though less marked. For two days she had noticed that she was deaf on the left side. The meatus and membrana tympani appeared normal, but there was marked deafness of the inner ear type, the acoumeter being heard at two inches only.

The facial paralysis was treated by the interrupted current, and on August 1st there was slight though definite return of voluntary power in all the facial muscles. The hearing was much improved, though still a little dulled, acoumeter being now heard at twelve inches. The palate was now normal and the general health fair.

In brief the symptoms presented were: (1) fever and vomiting, (2) facial palsy of peripheral type, (3) an auditory nerve affection, (4) on the mucous surface supplied by the glosso-pharyngeal nerve an eruption resembling that of herpes zoster, (5) pain felt behind the ear and down the left side of the neck posteriorly.

Ramsay Hunt in 1907[1] put forward the view that herpes auricularis, in which the eruption is limited to the tympanum, external auditory canal, and auricle, is due to herpetic inflammation (posterior poliomyelitis) of the geniculate ganglion. He describes four varieties:

(1) Herpes auricularis.
(2) Herpes auricularis with facial palsy.
(3) Herpes auricularis with facial palsy and hypoacousis.
(4) Herpes auricularis with facial palsy and Ménière's complex.

These complications sometimes occur in herpes facialis, occipitalis, and cervicalis, and he explains this fact upon the theory that while the inflammation may predominate in one ganglion, others near by may participate in a milder form, the zones here named being controlled by the Gasserian, geniculate, and cervical ganglia.

In the case here described there was facial palsy and hypoacousis, but not the herpes auricularis. In its place there was herpes of the palate. Was this due to herpetic inflammation of the ganglion of the glosso-pharyngeal nerve?

With regard to the possibility of this occurrence, Ramsay Hunt[2] says: "If the Gasserian and geniculate ganglia, by virtue of their unipolar type, belong to the series of ganglia liable to the inflammation of zona, the same would also be true of the ganglia of the glosso-pharyngeal nerve and of the vagus nerve. These ganglia are also regarded by histologists as belonging to the unipolar or spinal type, and therefore cannot be excluded from the realm of herpes zoster." Hunt does not describe any cases in which he has found evidence of involvement of the ninth nerve, though he describes one case of herpes auricularis in which stiffness of neck, frequent vomiting, and slow irregular pulse suggested that the vagus might be affected.

Sequeira (*Diseases of the Skin*, 1919) mentions buccal

herpes as a variety of herpes simplex, and as essentially different from herpes zoster; he says: "Buccal herpes is very rare. The mucous membrane of cheeks, palate, and tongue may be involved." He makes no mention of an association with facial palsy or deafness. Osler mentions herpes auricularis, quoting Ramsay Hunt, but makes no mention of buccal herpes.

If the eruption on the palate was, as seems probable, due to an affection of the ninth nerve ganglion, perhaps the pain felt behind the ear and the vomiting were due to an involvement of the tenth nerve ganglion, and the pains in the neck to involvement of those of the second and third cervical. The case would thus present a pathological picture of posterior poliomyelitis of a succession of ganglia, the geniculate ganglion affecting both the seventh and eighth nerves, the ganglia on the ninth and tenth cranial nerves, and the posterior root ganglia of the second and third cervical, the infection being most acute in the upper ganglia, and less acute below.

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TWO CASES OF SO-CALLED GYNAECOMASTIA IN YOUNG BOYS.

BY

HELEN INGLEBY, M.B., M.R.C.P.,

CURATOR OF THE MUSEUM, ST. GEORGE'S HOSPITAL.

HYPERTROPHY of the male breast is not a very uncommon condition in individuals over the age of puberty. The natural growth and development which occurs in the male breast at this time may become exaggerated after inflammation or trauma, or as a consequence of derangement of the internal secretions—for example, after atrophy of the testes from any cause. Enlargement of the breast due to mastitis in newborn children is also often met with, but in the majority of cases it leaves no sequelae. In boys below the age of puberty hypertrophy of the breast appears to be rare. Doubtless many cases have passed unrecorded, but in a search through the literature of the last fifty years I have only been able to find one instance. The following cases may therefore be of interest.

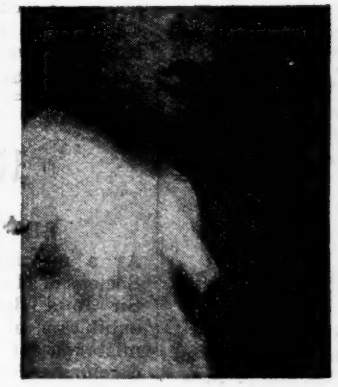

FIG. 1.—Case I. Enlargement of left breast. The stain under the breast is due to iodine.

CASE I.

Thomas Y., aged 7, was admitted to St. George's Hospital, under Sir Crisp English, on August 24th, 1918, for enlargement of the left breast. According to the parents, the left breast had been slightly larger than the right since birth, but had recently increased considerably in size. There was never any pain nor had there been any discharge from the nipple. The disfigurement was, however, commented on by other boys at school, and the parents were anxious to have the organ removed.

On admission, there was seen to be a general enlargement of the whole left breast (see Fig. 1). There was no tenderness, no dimpling of the skin, and no retraction of the nipple. The breast was freely movable on the deeper structures. It was soft, and felt as though affected with a slight degree of chronic mastitis. Some small freely movable glands were palpable in the left axilla. In other respects the child was healthy. The right breast was normal, and there were no other congenital defects.

On August 27th Sir Crisp English removed the breast, leaving the nipple *in situ*. The boy made a good recovery.

Pathological Examination.—The excised organ measured 2½ in. across and ¾ in. in depth. It felt firm and appeared to be composed of fibrous tissue in which small cysts were visible. Pieces were fixed in formalin and in Zenker's fluid, embedded in paraffin and stained in various ways. Microscopically the sections show a dense fibrous tissue stroma in which ducts can be seen running in various directions. These latter have a normal structure—that is, their wall consists of a membrane lined by two rows of cells, the outer cubical, the inner columnar. They are, however, as a rule, wider and more branched than in the normal gland. Some are considerably dilated. The lumen sometimes contains granular débris. In places the mucous membrane has proliferated and forms little buds which project into the lumen of the duct (Fig. 2). The ducts appear to end in a sort of cul-de-sac. No true acini can be distinguished in any of the sections. The connective tissue fibres are arranged sometimes around, sometimes parallel with the ducts. Near the latter the fibres are finer and take on a blue colour with Mallory's connective tissue stain. Away from the ducts the fibres are coarse and stain deeply with acid fuchsin. Where Mallory's stain is used without acid fuchsin the fibres, as a whole, are blue, but a few of the coarser ones take on the orange G. stain. With van Gieson the fibres are red, but those nearest the ducts are not so deeply stained. Fat is present here and there between the fibrous tissue bundles. The blood vessels are small and inconspicuous. A small-celled infiltration is present round many of the ducts, the cells being chiefly lymphocytes with an occasional plasma cell.

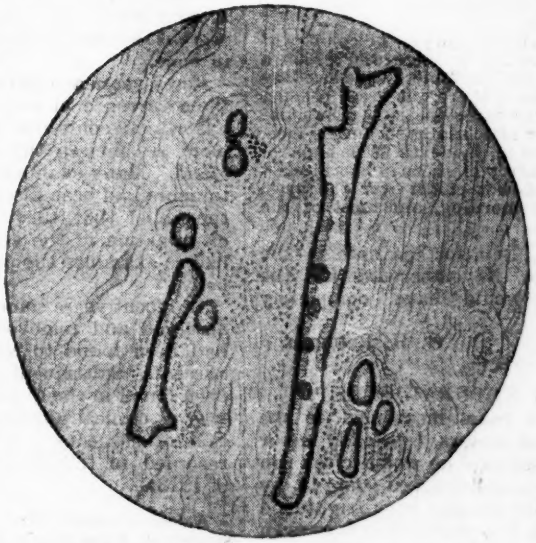

FIG. 2.—Longitudinal section of breast. Case I.

CASE II.

Ernest V., aged 9, was admitted to St. George's Hospital under Mr. C. H. S. Frankau on September 14th, 1912, for a gradually increasing swelling of the right breast of nine months' duration. On examination the right breast was found to be occupied by a fibro-cystic swelling the size of a farthing bun. There was no attachment to skin or to deeper structures. The left breast was normal, as also were the genital organs. Amputation of the right breast was performed on the following day, the nipple being left *in situ*. The patient made a good recovery.

Microscopically the organ showed precisely the same characteristics as in the first case, with the exception that round-celled infiltration was exceedingly slight.

Hypertrophy of the male breast is described by Paulus Aegineta, or has long been known under the title of gynaecomastia. But what is gynaecomastia?

The microscopical features have been described by Gruber, E. Israel, Scheiber, Stieda, Schuchardt, and Anna Kasimir. Their accounts agree very closely with each other and with the findings in the present cases. The characteristics of the condition are the excess of fibrous tissue, the large number of ducts, and the rarity of the acini. Fat may be found in the interstices between the layers of fibrous tissue surrounding the ducts; round-celled infiltration may be present or absent. Very similar appearances are found in fibro-adenoma which occasionally appears in the male breast, but this condition is easily distinguished, as there is then a circumscribed tumour localized to one portion of the organ, not a diffuse enlargement of the whole breast. The accounts of gynaecomastia in current textbooks are, however, decidedly contradictory. For instance, Sampson Handley, in his article in Choyce's *Surgery*, says: "Histologically the breast resembles that of the virgin female"; whereas in Rose and Carless the statement is made that "the organ is usually functionless since the overgrowth mainly affects the stroma, although lactation has been known to occur." The statement that a male breast may secrete milk recurs in most textbooks, and appears to have its origin in the story, quoted by many authors, of the man who, on the death of his wife after childbirth, reared his infant by putting it to his own breast. The story is picturesque, but the occurrence of

lactation requires confirmation; for although discharge of albuminous fluid from the male breast is fairly common, chemical analysis has so far failed to show the presence of milk. This is only what one would expect considering the scarcity of acini in the tissues examined. Pathological evidence, therefore, shows that the term gynaecomastia is really a misnomer. The position is admirably summed up by Stieda. He says: "The term gynaecomastia is only justified in so far as it applies to the external form and increase in volume of the male breast; it must not be understood to express a histological conception, nor any similarity between such a breast and the female breast which is capable of function."

Gynaecomastia, as has been indicated above, has many causes and cannot be considered as a true pathological entity. The term has already to a great extent fallen into disuse; it would save confusion to delete it altogether from our nomenclature.

In conclusion, I wish to thank Sir Crisp English and Mr. C. H. S. Frankau for kind permission to publish these cases, and Mrs. Hughes for the excellent drawing which is reproduced here. To Mr. Frankau also I am indebted for much valuable assistance in looking up records.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ASPIRIN POISONING AND IDIOSYNCRASY.

IN order to emphasize the constancy of the symptoms of aspirin poisoning I wish to record two cases, one of overdose and the other of idiosyncrasy.

CASE I.

Miss H., a highly neurotic young woman, suffered from facial neuralgia, and to stop the pain took fourteen to twenty 5-grain tablets of aspirin in two days. At night I received a message that she was choking. On arrival stertorous breathing was heard all over the house; the patient's eyes were watering, but there was no marked swelling of face, and no rash. I treated her for oedema of the glottis, applying poultices to neck, and giving hot coffee, castor oil, and brandy by the mouth. Next morning she was quite recovered.

CASE II.

On November 4th, 1919, Mrs. P. sent for me in the country at 1 a.m. for a swollen face. She had a sore throat, for which a neighbour prescribed one 5-grain aspirin tablet. The swelling of the face was almost instantaneous; there was great oedema of the eyelids and lips, together with lachrymation. The pulse was about 120. There was a slight urticarial rash on the face, but none on the body; there was no evidence of oedema of larynx. I prescribed coffee and castor oil (brandy had already been administered), together with hot cloths over the eyes. The patient was better the next morning, and most of the oedema had gone.

I am indebted to Dr. R. F. Bolt for his note in the BRITISH MEDICAL JOURNAL for November 1st for the diagnosis, which otherwise would have completely baffled me.

Woolston, Hants. G. H. PRIDHAM.

SUGGESTION DURING NATURAL SLEEP.

THE mother of a boy aged 4 years mentioned to me casually that he was terrified of motors, especially motor cycles. I use one myself, and she said he would often run away when he heard me coming, and disliked going to my house for the same reason. He became very frightened if a motor cycle passed him on the road. The fear even extended to a machine at rest.

On talking it over with his mother, I discovered that the cause of this fear was the action of a chauffeur about a year before, who had told the boy to put his ear to the trumpet of a Klaxon horn, and had then driven home the sounding rod forcibly. The child used to start up in sleep and cry out.

I had treated the mother by hypnosis for a nervous affection with success and had discussed her child's case with her at some length. A few days later I happened to go to her house to see her husband. The boy was asleep, so, after telling his mother what I proposed to do, I sat down by the bedside, laid my hand on his head, and told him that he would not wake up, but that he would hear what I was saying to him. In very simple language I related the original occurrence, and told him that his fear would go and that he would be able in future to face a motor cycle without any alarm. I talked in this strain for about ten minutes, repeating my suggestions in slightly varying form, then left the house.

His mother soon noticed that the fear had gone; in fact, a few days after the boy told her that he was no longer afraid. He did not know that I had been to see him until she informed him of it. The fear has left him completely, so much so that he will now touch and examine a motor cycle with interest.

I had read that the subconscious mind of a child can be approached during ordinary sleep, and I was glad to have the opportunity of proving it for myself. A few weeks after this I was consulted by an educated man about his son aged 5 years. The boy was continually handling his penis. I recommended his father to talk to him during sleep, which he did. Later on he told me that the result had been completely successful.

Henley-on-Thames. THOMAS H. GANDY.

Reports of Societies.

SECONDARY DEPOSITS IN BONE.

AT a meeting of the Section of Surgery of the Royal Society of Medicine held on November 5th, the President, Sir JOHN BLAND-SUTTON, in opening a discussion and exhibition of specimens of secondary deposits in bone mistaken for primary tumours, said that when secondary carcinoma grew in an organ not easily accessible to putrefactive micro-organisms the deposit might become big before attracting attention. This phenomenon had been particularly observed in connexion with the ovary. Large solid and semi-solid ovarian tumours had been removed under the impression that they were primary. The histology of such tumours had proved that the primary tumours arose in the breast, gall bladder, or gastro-intestinal tract, and the subsequent history of such patients had confirmed the histological findings. This was equally true of bone. Portions of long bones had been removed and limbs had been amputated for tumours regarded as primary, but the tumour tissue had contained epithelial elements. It was established that epithelial tumours did not arise primarily in bone.

Forty years ago the attention of surgeons was drawn to the occurrence of tumours in bone, regarded as primary, but which contained epithelium in shape and arrangement resembling the lining of the vesicles of the thyroid gland. Many examples had been recorded in which such tumours had been discovered and removed, or recorded in the belief that they were primary, but after a minute examination of the structure of the tumour the surgeon had re-examined the patient and found an enlarged thyroid body.

In recent years some remarkable bone tumours had been observed and removed in bones which, when examined, had been found to resemble the zona fasciculata of the adrenal. Subsequently a tumour of similar structure had been found in the kidney or in the adrenal. This matter was of clinical importance and well worthy the consideration of surgeons. He described a case which he had recorded in full at the opening meeting of the session of 1918.

A doctor, aged 45, had a swelling in the lower part of the right humerus. Clinically it furnished the usual signs of a myeloma, and it was excised under this impression. Two years later it recurred in the stump of the bone; this was excised within two inches of the humeral shaft. The patient remained well for five years, and died suddenly in hospital. After death a tumour was found in each adrenal and in the right kidney. The tumours in the humerus, and in the adrenals and in the kidney were so destroyed by extravasation of blood that the structure of the tumour could not be satisfactorily determined.

but a solid secondary nodule in the heart, in shape and size like a nut, showed the characteristic structure of the zona fasciculata of the adrenal.

On these facts the speaker had come to the conclusion that this was an example of an adrenal tumour, but Professor Shaw Dunn, who examined the specimen, believed that the primary tumour arose in the kidney and was a hypernephroma. The chief lesson to be drawn from the narrative was this: A man had a tumour in the right kidney which had run such a chronic course that no one suspected its existence, although a secondary deposit in the right humerus had become large enough to be clinically obtrusive and mimic a myeloma. After removal of the secondary tumour the patient lived in comfort and usefulness for five years. It also illustrated what he had often tried to emphasize—that cancer *per se* was an extremely chronic illness until it became septic; then misery attended until life was extinguished by a terminal infection.

Several specimens were shown bearing out this contention, among which was one of a tumour of the clavicle which was shown by Mr. V. WARREN LOW. The patient was a man of 55 years who had "ricked" his shoulder while practising physical exercises, and about a fortnight after the accident first noticed a lump on the clavicle. It was not painful, and caused him little inconvenience. An exploratory operation was performed, but it was found necessary to remove the clavicle. The contents of the tumour were examined by Dr. B. H. Spilsbury, who pronounced it to be carcinoma. There was no definite evidence of any primary growth in the prostate, intestine, or mammae; there was no swelling of the thyroid, and it was supposed that this was a case of bone tumour secondary to an adrenal growth.

Mr. CYRIL NITCH reported two cases which he described as examples of errors in diagnosis resulting from absence of any symptoms which would have led to recognition of the primary growth.

The first occurred in a man aged 52, who had a swelling below the right elbow, of two years' duration, which was causing great pain and had increased rapidly in size. Owing to the history and the severe pain the lesion was thought to be due to tubercle. Operation was performed and the tumour was widely excised. Dr. L. S. Dudgeon made a microscopical examination, and described it as typical of carcinoma of the adrenal cortex. The abdomen was then examined, and a nodular tumour was found in the right loin. Shortly after operation a soft pulsating nodule was discovered on the ninth rib. The growth on the arm recurred, and was now as large as at the time of operation six months ago. Until three weeks ago, when the patient had a severe attack of haematuria, there had been no symptoms suggestive of the primary growth.

The second case was that of a female with a large globular swelling of the upper end of the right humerus, and another in the body of the left scapula. These were thought to be sarcoma, and their real nature was not recognized until after a microscopical examination had been made of a portion of the tumour removed for the purpose. It was then discovered that the growths were secondary to adrenal carcinoma, which up to that time had given no signs of its existence.

The subject was discussed, and illustrative cases were described by Sir CHARLES BALLANCE, Sir HUMPHRY ROLLESTON, Mr. G. W. NICHOLSON, Mr. CECIL ROWNTREE, and Mr. DOUGLAS DREW.

Mr. E. K. MARTIN showed a specimen of the upper extremity of the right humerus completely replaced by growth, with fracture of the surgical neck, in a woman aged 52. Sarcoma was diagnosed and the limb was amputated through the shoulder. Microscopical examination showed the presence of secondary carcinoma. Search for the primary growth revealed an extensive carcinoma of the cervix, and the patient died six months later.

Mr. Martin also showed a specimen of the upper part of the left femur of a man aged 65, with a lobulated tumour projecting from the lower aspect of the neck and adjacent part of the shaft, the bone being expanded posteriorly. The condition was thought to be sarcoma, and amputation at the hip was performed. There was a central deposit in the trochanter, neck, and head. Microscopically there was a delicate connective tissue stroma enclosing large alveoli, most of which were filled with spheroidal cells. In some alveoli the cells tended to assume a cubical shape. There was no evidence of the position of the primary tumour. Death occurred shortly after operation and there was no *post-mortem* examination.

Mr. CLAYTON GREENE recorded a case of carcinoma of the ileum in a woman aged about 56 years. She had always been constipated, but there was no definite evidence of intestinal trouble. The tumour was explored and a section of a portion removed showed it to be a columnar celled carcinoma.

URINARY FLAGELLATES.

AT a meeting of the Pathological Section of the Royal Society of Medicine, held on November 4th, with Dr. WILLIAM BULLOCH, F.R.S., in the chair, Professor ARTHUR POWELL made a communication on a bodonid residing in the urinary tract for five years. He summarized his findings under the following heads:

1. Four previous observers have found flagellates in urine, always decomposing and stale, never in freshly drawn urine.

2. Pathologists were therefore justly sceptical as to their parasitic nature. They had been found in human urine, not in the human body. They were regarded as accidental contaminations.

3. In the author's case the flagellates were constantly present in the urine drawn with aseptic precautions. They died when the urine decomposed.

4. The flagellates were first seen when the urine was chylous (filariasis). They persisted when the urine was otherwise normal. This pointed to the flagellates being emigrant via the lacteals from the alimentary canal.

5. There was a striking difference in the habits of the flagellates in 1914 and 1919. Was this an adaptation to the new environment?

6. As far as the author could judge, the parasites were harmless.

The author remarked that the case was not important, but interesting from a pathological point of view.

Dr. DENNIS EMBLETON then read a paper on sphenoidal empyema and epidemic spinal fever, which will be published in full in a subsequent issue.

THE INCISION IN CAESAREAN SECTION.

AT a meeting of the North of England Obstetrical and Gynaecological Society, held at Liverpool on October 17th, with Mr. MILES PHILLIPS, the President, in the chair, Dr. J. M. MUNRO KERR of Glasgow opened a discussion on the cicatrix of the uterine wound in Caesarean section. He put forward the following reasons why the ordinary longitudinal incision should be considered as unsatisfactory: (1) The scar was inevitably starved because sutures were used both as haemostatic agents and coaptors; (2) satisfactory coaptation was difficult to secure, because the sheets of muscle in the uterine wall were irregularly distributed and the uterus was in a state of unrest (normal contraction) and of involution; and (3) blood tended to collect between the raw surfaces, leading to a more or less broad band of fibrous tissue which might stretch or give way in a subsequent pregnancy.

He suggested three alternatives to the ordinary through-and-through sutures after delivery of the placenta: (1) Immediate suture after delivery, while the uterus was in a state of rest and before the placenta was delivered, this being left to pass through the cervix; (2) suture in layers; (3) delivery through a low transverse incision in the lower uterine segment, assisted by the Trendelenburg position, with expression of the child by a hand behind the fundus; the cord was to be replaced in the uterus and the placenta allowed to deliver itself naturally. He had practised this method, which led to very little bleeding, for the last two years, and strongly recommended it. The only pertinent objection that he could see was the possibility, in suspect cases, of the gravitation of deleterious material towards the uterus.

A spirited discussion developed which was notable for a frankly expressed distrust of the lower uterine segment, and for confidence in the more usual incision provided certain precautions as regards technique were observed. Dr. BRIGGS (Liverpool) advocated that suturing with catgut in horizontal layers should be begun as soon as the child was delivered, while the uterus was at rest, and that the incision should be a small and longitudinal one. Dr. GEMMELL (Liverpool) sutured a high vertical incision with three layers of catgut, while Dr. CROFT (Leeds) preferred fine silk. Dr. CLIFFORD (Manchester), who adopted through-and-through catgut sutures omitting the mucosa, with

chromic catgut superficially, was supported by several members in his contention that the lower uterine segment was essentially weak, became more so during the course of a protracted labour, and was thereby an inauspicious site for incision.

Details from various clinics were put forward by members who did not consider there was sufficient evidence that a longitudinal incision in the contractile portion of the uterus was less satisfactory than one in the lower uterine segment. Dr. Munro Kerr briefly replied.

At a meeting of the Leeds and West Riding Medico-Chirurgical Society held on October 31st, Dr. L. A. Rowden communicated a paper dealing with the principles of the treatment of hyperthyroidism by radiations. The technique of treatment was explained and indications were given as to the most suitable type of case for which radiations had proved their utility. An interesting discussion followed. Amongst the cases and specimens shown at the meeting were a case of oriental sore by Dr. R. A. Veale, and a skiagram shown by Mr. J. F. Dobson from a case of ureteral calculus removed by trans-vesical ureterolithotomy. Mr. W. Thompson demonstrated a case of carcinoma of the breast; the other breast had been removed for carcinoma sixteen years before.

A meeting of the London Association of the Medical Women's Federation was held at 11, Chandos Street on November 4th; the President, Mrs. Flemming, was in the chair. The subject for discussion was "Medical work in the Mediterranean area," and several members who had been attached to the R.A.M.C. during the war gave an account of some of their experiences. Miss Lepper, M.D., gave particulars of a fulminating case of cerebral malaria in which the symptoms began four hours before death took place, and showed microscopical preparations from the *post-mortem* material. She then described a case of blackwater fever and one of liver abscess secondary to amoebic dysentery. Specimens and slides from both cases were shown. Dr. D. C. Hare reported on cases of paratyphoid fever occurring in Malta in the later months of 1916. The cases were all of mild uncomplicated character, and the chief interest lay in the diagnosis. The difficulty of basing a diagnosis on agglutination tests alone in inoculated patients was emphasized. Dr. Elizabeth Hurdon (Baltimore) described some of the cases under her care in Malta and Salonica. She referred to the difficulties in diagnosis between malaria and dysentery and in dealing with the mixed infections. Dr. Effie Craig gave an account of her work in Malta and Salonica, referring to the great prevalence of malaria and scurvy among the Serbs. Dr. M. C. Blair described some of the features of life in a camp and the way in which infection was avoided in cases of dysentery. No cases occurred among the hospital staff during the winter months in the camp to which she was attached.

Reviews.

THE CEREBRO-SPINAL FLUID.

The spirit of Dr. Levinson's monograph on the *Cerebro-spinal Fluid in Health and Disease*[1] is shown by its dedication to those who regard the practice of medicine as an ideal rather than a profession, who combine clinical insight with scientific research, and see in medicine both a science and a philosophy. The interesting chapter on the history contains portraits of Haller and Magendie who first described the cerebro-spinal fluid, and a reference to Corning's description of spinal anaesthesia as long ago as 1855. Dr. Essex Wynter's priority over Quincke in the performance of lumbar puncture is rightly noted here, for very commonly it is ascribed to the German professor.

The origin and method of absorption of the cerebro-spinal fluid are fully discussed in the light of recent researches, but though the author inclines to the view that the choroid (or, as he always writes, chorioid) plexuses are the source of the fluid, the question whether it is a secretion or not is left open.

For estimating the pressure of the cerebro-spinal fluid the author has devised a spinal puncture needle and manometer to obviate the risk of losing some fluid before the pressure can be estimated. Due attention is paid to the practical points in the technique of lumbar puncture, and the untoward effects of puncture and the reasons for failure to obtain fluid are discussed. The section on the properties of the cerebro-spinal fluid contains much original work; thus the author has examined the hydrogen-ion concentration in more than 400 non-meningitic fluids. The accounts of the examination of the fluid for diagnosis and of the characters of the fluid in various diseases will be of the greatest use to those working in clinical laboratories. Lange's gold chloride test is fully described and illustrated by two coloured plates; Emanuel's mastic test, which is based on the same principle, should, when time permits, be employed to afford corroborative evidence, but until further data are available Lange's test is preferable. A summary of the characters of the cerebro-spinal fluid in various diseases brings this valuable monograph to a close.

[1] *Cerebro-spinal Fluid in Health and Disease.* By Abraham Levinson, M.D., Associate in Pediatrics, North-Western University Medical School; with a foreword by Ludvig Hektoen, M.D. London: Henry Kimpton. 1919. (Med. 8vo, pp. 231; 56 figures and 5 coloured plates. 18s. net.)

HEART DISEASE.

Dr. Brockbank's practical points on *The Diagnosis and Treatment of Heart Disease*[2] appeal not only to students beginning their clinical course, but also to those who wish to revise their knowledge of cardiology and to appreciate the reasons for the physical signs with which they are familiar. The appearance of a fourth edition is proof that the book fulfils a wide demand.

The first two chapters deal with anatomy, physiology, and routine examination. An account of heart sounds and murmurs and the general signs of cardiac disease occupies the bulk of the volume. Septic endocarditis, pericarditis, and angina pectoris are then briefly described. A chapter on cardiac irregularity follows, and the book ends with some very practical notes on treatment. The arrangement of the subject matter in short paragraphs with large type headings is extremely convenient, though for the sake of brevity the author is obliged to be somewhat dogmatic. Some statements may be open to misconstruction. For instance, it may be technically correct that "aortic systolic murmurs generally indicate actual obstruction to the flow of blood from the left ventricle," but the impression left on the student's mind is that an aortic systolic murmur is diagnostic of aortic stenosis, for no mention is made of its occurrence in the commoner condition of aortic reflux. No note is given of the relative frequency of the two lesions. Defects of this kind are, however, almost inevitable where a large amount of information is compressed in a small space. The book is crowded with excellent matter, and fully deserves its popularity.

[2] *The Diagnosis and Treatment of Heart Disease: Practical Points for Students and Practitioners.* By E. M. Brockbank, M.D.Vict., F.R.C.P. Fourth edition. London: H. K. Lewis and Co. 1919. (Cr. 8vo, pp. 158; 22 figures. 5s. net.)

THE *X* RAYS IN DIAGNOSIS.

Roentgen Interpretation[3] is the title of a book by Drs. Holmes and Ruggles, designed as a practical aid to those in search of a working knowledge of how to understand the evidence afforded by the *x* rays. The idea is to give the essentials of diagnosis by this method, illustrated by a series of typical radiographs. Great stress is laid on the importance of a thorough knowledge of pathology if the radiologist is to be in a position to decipher the meaning of the various abnormal shadows which are met with.

The book consists of a number of chapters each one of which is devoted to a special subject; for example, there are chapters upon anatomical variations and development, on bone pathology, on the chest, on the genito-urinary tract, and so on. Whilst in each chapter all the abnormal conditions which may be met with are indicated, only the more common and those which are of greatest importance are fully described, and only the typical are illustrated. At the end of each chapter is a bibliography of some of the more important monographs bearing on its subject matter, to which the authors refer the reader who desires further information. This bibliography, however, is very far from being complete. An idea of the scope of the book may be gathered from the size of the chapter on the genito-

[3] *Roentgen Interpretation.* A Manual for Students and Practitioners. By George W. Holmes, M.D., Roentgenologist to the Massachusetts General Hospital, etc., and Howard E. Ruggles, M.D., Roentgenologist to the University of California Hospital, etc. London: Henry Kimpton. 1919. (Med. 8vo, pp. 211; 181 figures. 15s. net.)

urinary tract. This is dealt with in about eight complete pages of letterpress, fifteen illustrations, and nine references to literature. Notwithstanding this compression there is little or nothing left out, and the chapter forms a concise and accurate guide to the general scope of *x* ray diagnosis within this area and to the pitfalls which have to be avoided. It should be noted that *x*-ray diagnosis alone is considered, and that questions of apparatus, technique, and so forth, are not entered upon. The whole is well compiled, easy to read and understand, deals with essentials only, and can be recommended to those commencing *x*-ray work, or to those who desire to know something of its possibilities and wish to acquire a knowledge of how to read *x* ray plates and prints.

STEREOCHEMISTRY.

The second edition of Professor Stewart's book on *Stereochemistry*,[4] or the chemical (and physical) investigation of the arrangement of atoms in space, gives the student of chemistry an admirable account of a subject of interest to both chemists and physiologists. It was in 1873 that Wislicenus gave a great impetus to the study of the intramolecular arrangement of chemical atoms in space, in the case of the isomeric lactic acids; in 1874 the problem was independently attacked by Van t'Hoff in Holland and Le Bel in France; their success encouraged others to attack the problem, and an enormous literature has accumulated. The study of stereochemistry has inspired directly a vast amount of important chemical work.

Professor Stewart's book is meant for readers with a fair chemical education; it is comprehensive, clearly written, well documented, and full of suggestions indicating lines for future research. From a perusal of the work it becomes clear that less and less as the years go on are chemists satisfied with the idea of uniformity in the molecules of organic compounds. Thus in the case of benzene the two-dimensional formula was replaced by one in three dimensions, at first rigid but later endowed with a capacity for oscillation, or with various dynamic capacities; Collie's formula, in which the carbon atoms are arranged at the corners of an octahedron, appears to give the most promising interpretation of the many chemical facts upon which the benzene formula must in the last resort be based. Without doubt the adaptability of this formula makes it highly attractive, and it does much to afford a rational basis for speculations as to the molecular structure of many other chemical compounds.

NATIONAL HEALTH.

Dr. Ferdinand Rees of Wigan dedicates his brightly written pamphlet on *National Health*[5] "without permission to our first Minister of Health," and we learn on the last page but one that most of it was put together two years before the Ministry came into being. The author's object is to stimulate public thought on the reconstruction of our organization for maintaining health and combating disease. He writes from the standpoint of a thoughtful and experienced general practitioner who has always taken a keen interest in medical politics. He has observed the progress of preventive medicine during the past quarter of a century, and he writes with knowledge of professional organization.

His studies on superstition of the past and of to-day lead him to fear that the "Insurance Commissioners are putting real hindrances in the way of the progress of medical science by their exaltation of the 'bottle of-medicine.' The insured person is taught to attach too great importance to it, and the panel practitioner finds prescribing stock mixtures an easy and expeditious method of emptying his surgery of the ever-present crowd. Careful diagnosis of the origin of the complaint, advice as to mode of life, dietary, etc., take up too much time." In the chapter on surgery and medicine Dr. Rees advocates closer co-operation between the two sides of the profession and a more equitable division of remuneration. He is convinced that the present system of remunerating doctors puts temptation in their way; trading in patients plays into the hands of the enemy—disease. The organization of the medical profession, he argues, must be around the hospitals of the country, and here he crosses swords with the adherents of the voluntary system, which he regards as merely a phase in social evolution.

"It has served its purpose, a magnificent purpose; but it must make way for a more advanced social organization." Developing his views on this topic Dr. Rees associates himself with those expressed by Dr. Secretan in our issue of May 31st, 1919. In the chapter on the future of the National Insurance Act he maintains that the danger of lowering the general practitioner's status can be prevented by adequate remuneration, and by bringing the panel practitioner into close contact with the hospitals, to the advantage of the general standard of medical practice everywhere. But to achieve this end the different grades of hospitals must all be brought into working touch by means of liaison officers. Brief chapters follow on the Ministry of Health, on death certification, and on the woman doctor.

The concluding chapter gives a brisk summary of what has gone before, and the author adds by way of postscript some candid and amusing observations on the advantages and disadvantages of a State Medical Service, and on the medical trade union controversy. The pamphlet as a whole shows good sense, good humour, and a constructive outlook.

NAVAL HYGIENE.

A most excellent if somewhat tedious handbook on *Naval Hygiene*,[6] written by Professor J. C. Pryor, of the George Washington University, U.S.A., gives an exceedingly interesting and accurate account of life on a ship of war. The sick-bay arrangements appear to be especially admirable, and show a degree of foresight and of respect for expert medical advice that might well be emulated.

The book, as has been said, makes in parts somewhat tedious reading; this is owing to the fact that, in addition to the matter directly relevant to shipboard, there is much elementary material dealing at some length with general information on matters concerned with preventive medicine. This may perhaps be adjudged a necessary feature of a book designed primarily for the use of those undergoing instruction at a naval college; but at the same time if a large portion of this elementary detail were removed the work would benefit immensely.

It is to be doubted whether the author really approved the coloured plates dealing with the inspection of meat, and if they may be relied upon to form a good guide; they would appear to be far too brilliant in colouring.

The index of this book is good, and as a handbook for naval surgeons and others it will form a valuable addition to the literature of the subject.

PROGNOSIS BY MATHEMATICS.

The book on general prognosis in health and disease,[7] by Professor Brugsch of Berlin, is a massive German work dealing with health and disease, mainly from the point of view of constitution or diathesis, in a thoroughly German way. According to the professor, the problems of prognosis have never yet been attacked in a truly methodical manner, and his book is devoted to showing how this should be done on scientific lines. Thus, a person's constitution may be formulated as follows:

$$C = J \underset{\leftarrow}{\rightarrow} O \underset{\leftarrow}{\rightarrow} A$$

where C=constitution, J=the internal conditions of O the organism, and A=the external conditions affecting it; the two sets of arrows pointing either way indicating

[4] *Stereochemistry.* By Alfred W. Stewart, D.Sc. Second edition. London: Longmans, Green and Co. 1919. (Demy 8vo, pp. xvi + 277; 58 figures. 12s. 6d. net.)

[5] *National Health: From Magic, Mystery, and Medicine to a National Health Service.* By Ferdinand Rees, M.D. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1919. (Price 1s. 6d. net.)

[6] *Naval Hygiene.* By J. C. Pryor, A.M., M.D., Professor of Preventive Medicine, George Washington University, U.S.A. London: W. Heinemann. 1919. (Fcap. 4to, pp. 507; 153 figures. 12s. 6d. net.)

[7] *Allgemeine Prognostik oder die Lehre von der ärztlichen Beurteilung des gesunden und kranken Menschen.* By Professor Dr. Theodor Brugsch, Berlin. Berlin and Vienna: Urban and Schwarzenberg. 1918. (Sup. roy. 8vo, pp. vi + 498; illustrated. M. 24; bound M. 28.)

a condition of equilibrium. In the same manner the equation for sickness is written thus:

$$K = f\left(\left[J \rightleftarrows O \rightleftarrows A\right] . p\right)$$

where K=sickness, f=a function, and p=the agent producing the sickness. Death, looked at from a dynamic point of view, may be expressed by the formula—

$$J \rightleftarrows O \rightleftarrows A$$

where J=A=0. The prognostic formula for gout is said to be—

$$K = J \rightleftarrows O \rightleftarrows A$$

whereas that for arterio-sclerosis is given as—

$$J \rightleftarrows O \rightleftarrows A_1 . A_2 . A_3 \ldots\ldots\ldots$$

where $A_1 . A_2 . A_3$ are the integrals of the external circumstances. The volume is divided into three more or less equal parts, the first dealing with Habit and Organization, the second with Constitution, the third with Person—which includes as subheadings such things as inherited characteristics, adaptability, resistance, and the like. The book deals only with the general problems of prognosis on broad lines, and does not attempt to show how a prognosis should be reached in any individual case; the Professor hopes—or threatens—to produce another book on Special Prognosis later. The volume now before us is redolent of the midnight oil, wonderfully unpractical, and highly illustrative of the lucubrational divagations of which the Teutonic professorial intellectuality is capable. Its value we doubt.

NOTES ON BOOKS.

In *Human Life and How it may be Prolonged to 120 Years*[8] Colonel MacCabe provides a spirited summary of all the laws of health, most of which one would imagine to be as well known by the laity, to whom the book is obviously addressed, as they are to the medical profession. Perhaps the best feature of the book is the resolute attitude shown towards faddists of every description. The title suggests how advantageous it would be to live to the age of six score years, but one is rather inclined to agree with the words of the Psalmist on this matter (Psalm xc, 10). Unfortunately for the hygienist's contention, although the age period may in general be prolonged by a knowledge and careful observance of the laws which govern the human body, yet without doubt longevity is very largely a matter of heredity. The ancient of the English village living happily on amidst distressing sanitary conditions, with windows firmly closed against the admission of fresh air, is an excellent and ever-present example of the force of this contention. Possibly, however, some readers will be glad to observe that the author has failed to quote as an authority the judge mentioned in Whateley's *Annotations*, who, having observed and questioned all aged persons whom he met, found that one factor alone was shared by all alike—they practised early rising.

The twenty-eighth edition of *The Annual Charities Register and Digest*,[9] issued by the Charity Organization Society, is a classified register of the charities in or available for the metropolis. Here will be found all the latest information about the thousands of charities to which application for relief can be made in affliction, sickness, permanent or temporary distress, and by those requiring the special forms of relief afforded by reformatories, miscellaneous associations, and, finally, a number of spiritual institutions. The book is as well known as it is indispensable to almoners of all sorts, and will often be useful to medical practitioners.

Dr. R. W. MacKenna's *The Adventure of Life*[10] contains a series of chapters in which the author discusses life and its meaning, its connexion with freedom, pain, sickness, work, and other conditions familiar to all of us, in a cheerful spirit of philosophy, religion, and optimism. The book should be soothing and sanative to many of those broken in or by the war—a message of hope and help; it should find many readers.

[8] *Human Life and How it may be Prolonged to 120 Years.* By Brevet Lieut.-Colonel F. F. MacCabe, M.B., South Irish Horse, attached R.A.M.C. London: Grant Richards, Ltd. 1919. (Cr. 8vo, pp. 297. 6s. net.)

[9] *The Annual Charities Register and Digest.* Being a Classified Register of Charities in or available for the Metropolis. Twenty-eighth edition. London: Longmans, Green, and Co., and Charity Organization Society. 1919. (Demy 8vo, pp. xx + 614. 5s. net.)

[10] *The Adventure of Life.* By Robert W. MacKenna, M.A., M.D. London: John Murray. 1919. (Cr. 8vo, pp. xiii+306. 6s. net.)

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

Though there are very few points in the exhibits at the Motor Car Show, which closes at Olympia on November 15th, that are of interest to medical men that we did not touch on last week, two matters call for mention. Owing to the fact that the process of elimination has already begun, some firms which drew the right to select stand sites in the ballot, and which took them up, found that they had nothing to show, therefore at a late stage there was a sort of game of General Post. Other exhibitors who had secured the less advantageous positions elected to engage those vacated. These changes affected the following exhibits mentioned in the table published in these pages last week; they are to be found at the stands bearing the numbers now mentioned in brackets: Angus Sanderson (67), Bentley (126), Chevrolet (96), Fiat (62), G. N. (6), Grahame-White (44), Lagonda (3), Riley (108), and Ruston-Hornsby (22). Happily the Exhibition management provided excellent illuminated signs at the end of each of the circulating avenues indicative of the exhibits, so that it was not needful for the visitor to have a catalogue to find the cars of which he was in quest.

The Putting Up of Prices.

Unhappily, the second point is one that has produced a very unfavourable impression. Car prices are liable to be raised any time in the course of the next few months owing, for example, to the quarterly meetings at which the prices are revised by the trade unionists. That was generally understood; but that the makers should wait until the Show was about to open, and that some who had announced very attractive propositions should increase them by sums varying from £50 to £100 per chassis was, to say the least, very undiplomatic. Nothing had happened within twenty-four hours to cause this sudden change, which must have been arranged in advance of the opening of the exhibition. But as the movement has not been participated in by more than a third of the exhibitors it is idle to set out a list of prices again. Suffice it that, among the more interesting and novel cars calculated to appeal to the medical practitioner, the figures are mostly as returned last week; hence such vehicles show up to-day in all the more striking contrast in the matter of value for money. For the rest, the industry will be well advised not to risk offending the motor-purchasing public by repeating such action on the occasion of the next show of the kind, when visitors will not be so indulgent and competition will be a great deal keener. What does the individual trader suppose is the effect on the mind of the intending buyer who is specially attracted to single out certain stands by reason of the prices announced for the exhibits on it, and who, when he comes to place his order, discovers at the last moment that he has to pay a good deal more money than the sum which he understood would suffice? Doctors will not be willing to find £50, £75, £100, or even more, as a surcharge on the purchase price of the car they require. Undoubtedly, therefore, the firms that had the wisdom to refrain from announcing their prices until they were sure they could deliver cars at certain figures have scored heavily in public esteem.

Air-cooled Cars and Doctor's Work.

As to chassis, a few cars only stand out as calling for further mention—namely, the air-cooled Cosmos and Enfield-Allday and A.B.C. vehicles; the 10 h.p. water-cooled Wolseley and the Willy-Overland machines; as well as the Hammond and Hampton novelties.

First as to the application of the air-cooled engine to the service of the medical man. These constructions come under one or other of two categories: those that derive more or less directly from motor-bicycle practice, and those that are the outcome of knowledge gained in connexion with aircraft. In neither case should the medical man resident in hot countries use these classes of cars, at least until the makers have standardized them for twelve months. For one thing, none of the new-style vehicles has been tested under tropical conditions. On

the other hand, the same precautions need not be observed in regard to home service. The air-cooled motor-cycle engine evolved, by those who have experience of it, for light-car service, as the Rover two-cylinder V-type proposition, need not be regarded askance by the medical man. Usually his work is not of the long journey sort. Here he has an engine the cylinders of which are not liable to crack through exposure to extreme cold for the simple reason that they are without water jackets. Moreover, the whole scheme of the engine comes well within the knowledge of the average local repairer with a motor bicycle *clientèle*. Such men can even understand the horizontally opposed twin cylinder A.B.C. light car, air-cooled engine with overhead valves worked by push-rods and rockers. This car has heavily finned cast-iron cylinder heads, between which and the machined steel cylinder barrel is interposed an aluminium insulator for the purpose of transposing the heat more readily from one side of the cylinder to the other; for which reason the exhaust port is placed on the windward side. The combustion chamber is hemispherical in shape, and the short, stiff camshaft runs on ball bearings. It is a type that can be quickly grasped by the average garage hand, should repair be needed.

A Coming Type.

But in this first season of standardization and issue to the public, the three and the five cylinder air-cooled radial engined light car, wherein the marked influence of knowledge gained from aviation can be seen, should not be acquired by the average medical man unless he has a liking for and a knowledge of mechanics, or is satisfied that conveniently near his residence there is an agent properly equipped for repair work, who engages hands specialized on the particular new style of construction he selects. In my view the biggest risk run by the sponsors of the air-cooled Cosmos car, and of the five-cylinder Enfield-Allday cars, is from the repairers. At least one of the manufacturers, the second named, is aware of this and is providing against it by testing the knowledge of the agents and of their staffs, at intervals after the delivery of the first examples, which are now out because production has attained the scale of twenty-five cars a week. Of course this is not anything like enough to meet demand. Consequently in the interests of a notable step in car evolution, quite apart from the interests of any individual firm, subsequent deliveries will be made to those agents who prove under periodical examination to have made themselves proficient in the distinctive qualities of such mechanism.

We have got to such a stage in the evolution of the air-cooled car engine that in the interests of the motorists of the future we cannot allow such a development to come to an untimely end through ignorant handling. I am satisfied that sufficient knowledge has been gained to render it possible to construct satisfactory air-cooled car engines. When, too, there is such a margin of power, as is provided in the Enfield-Allday for instance, the engine of which can develop over 3 h.p. per cwt. of complete vehicle, there is no reason why, for medical service, such mechanism need ever be put to anything like the top of its performance. I am in hope that this car, and the Cosmos three-cylinder air-cooled vehicle, will figure in the Royal Scottish Automobile Club's touring trial of Standard Light Cars, starting on June 14th, 1920. Provided the first few hundred buyers are of the right sort I think the time has now come when we can launch air-cooled cars with confidence. Several thousand would-be motor owners in this country will find the maintenance of such constructions child's play after their experiences with aircraft.

We ought to be especially on our guard against accepting unfavourable reports, should they come to hand from private users, because it will be extremely difficult to know how much or how little the individual owner really knows about such novel schemes. I quite expect to hear some of the cars damned in whole districts, but I am equally certain that they will earn unanimous praise in other districts. Nor will the circumstances of flat and hilly country account for such differences of opinion. Hills have little terror to engines with such a high ratio of power to weight. Certainly the Enfield-Allday has been tested very thoroughly on long hill climbs.

Outstanding Departures.

The chassis of both these air-cooled cars are original. Neither has dumbirons, for the Cosmos chassis employs the patented bell crank and horizontal coil spring suspension back and front; while the Enfield-Allday, with its even more unconventional box girder centralized frame, has true cantilever springs—not the quarter-elliptic sorts that are being mis-styled cantilevers by their manufacturers—set most ingeniously at a tangent from the axles to the frame members, with a result that the body should keep an even keel at corners, though, of course, in all these light luxuriously sprung constructions no car can have the same trim when the owner-driver alone is aboard it and when he has a passenger seated beside him. Nobody expects that. Neither is it necessary. The riding is equally agreeable in both cases where the steering is of the conventional as distinct from the left hand sort, which importers of the American cars are trying to get us to accept as a saving of expense—or rather, a gain to their pockets. The driver must always be on the car when it is travelling, but there are not always other folk aboard as well. As our roads should always have a camber of sorts, it follows that the driver ought to sit on the right, not the left hand, seat when motoring in this country.

The Cosmos engine is built up as a unit with the clutch and gearbox, whereas the Enfield-Allday engine is bolted to the aluminium casting at the front of the car frame, and the gearbox is suspended at the apex of the side members of that ingenious girder structure.

Some Other Cars.

Among cars with water-cooled engines, the 10 h.p. Hampton has a four-cylinder overhead valve Dorman engine with adjustable tappets, aluminium block casting detachable cylinder heads, and cast-iron cylinder liners; while the Hammond is chiefly notable for having helical spring controlled suspension, a principle that will probably come into more general use for the simpler forms of cars.

The Stellite car may be said to have grown into the 10 h.p. Wolseley, in that, with its three-speed gearbox, tapered channel steel frame, among other additions, as well as a four-cylinder, overhead valve engine that develops as much as 20 h.p., this vehicle is now capable of a much faster turn of speed, and is, of course, really well equipped for hill climbing.

The Willys-Overland suspension is evoking much interest, not because it is being miscalled a cantilever system, which it is not, but because it is something new and good. Here, as in the 10 h.p. and 15 h.p. Wolseley cars, we have a big constructional departure, resulting incidentally in a total absence of dumbirons. On the Willys-Overland there are two springs only, each being of the semi-elliptic sort; but in plan the leaves take a broad V form, the extremities passing to that part of the axle where the pads are provided in normal practice; while at its mid-length the back spring is attached to the centralized extremity of the frame, which overhangs the back axle. At its mid-length the front spring is attached to the centralized front end of the frame, which projects beyond the front axle, so that the spring base is 30 in. longer than the wheel base, very plangent riding being provided in consequence.

SOME months ago the municipal council of Lyons established a "secret maternity" for the reception of unmarried mothers. It is the equivalent of the old foundling hospital, but freely open without inquiries or formality. It provides accommodation for forty-five patients; all the beds are now occupied, and there is a waiting list of 800. On the proposal of the mayor, M. Herriot, the General Council has voted £8,000, and an annual sum of £2,000 has been placed on the departmental budget.

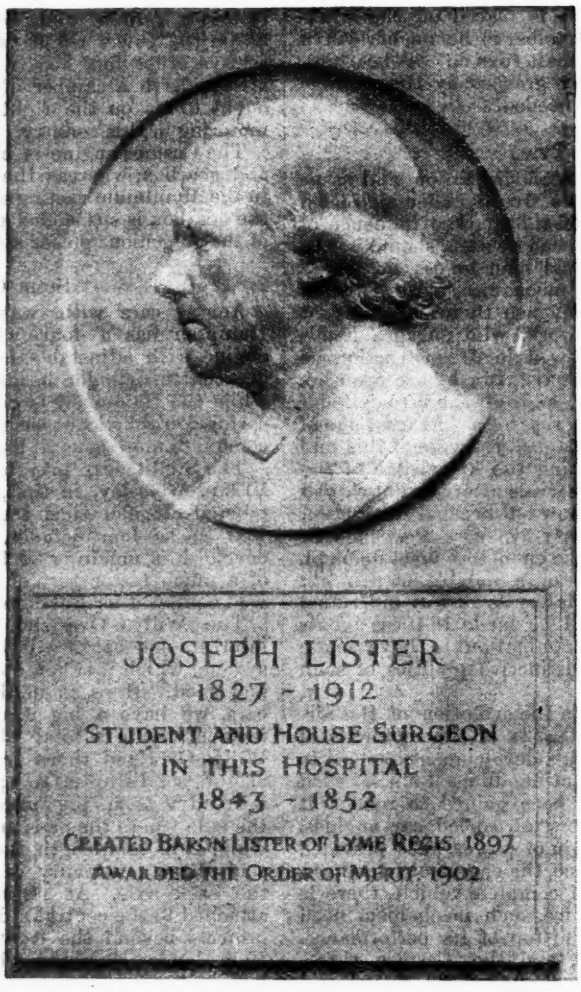
THE total number of students of medicine in Switzerland in the summer session of 1919 was 1,678. These were distributed among the five universities as follows: Bâle, 244, of whom 21 were women; 40 were foreigners, including 3 women. Berne, 360, of whom 32 were women; 134 were foreign, including 21 women. Geneva, 342, of whom 66 were women; 159 were foreign, including 46 women. Lausanne, 237, of whom 25 were women; 57 were foreign, including 12 women. Zürich, 495, of whom 102 were women; 112 were foreign, including 41 women.

THE LISTER MEMORIALS AT UNIVERSITY COLLEGE AND HOSPITAL.

THE two tablets in memory of Lord Lister, the one to have a permanent place in University College Hospital and the other in University College, were unveiled on November 11th. The DUKE OF BEDFORD, President of the Memorial Committee, presided over a large and distinguished company.

Address by the President of the Royal College of Surgeons of England.

Sir GEORGE MAKINS said that they were met to inaugurate a memorial to the great student who left those walls sixty-six years ago to open up a pathway to a new domain of knowledge and practice. No memorial in stone was needed to perpetuate Lister's fame. Moreover, there was a splendid monument already in the collected edition of his scientific papers, and one of the professors of that College had furnished a very complete Life. But while the fame of Lister could never pale, it might not be so generally remembered that he emanated from that school, and nothing could be more calculated to stimulate the ambition of future students than to see the effigy of one of the College's very greatest alumni upon its walls. The value of the education which Lord Lister received in that school and the influence which its teachers exercised upon him in cultivating the spirit of research could not be over-estimated. After taking a degree in arts, Lister entered the school of medicine. His early work, particularly on the structure and function of the iris, showed a power of observation, the ability to record observations, a desire to undertake experiments, and a readiness to assimilate knowledge and to appraise the work of his fellows. Lister thus became able to take prompt advantage of the discoveries of Pasteur, to describe their true significance with regard to wound infection, and to apply them practically. His frequent migrations from London to Edinburgh, then to Glasgow, back to Edinburgh again, and finally to London, must have been of great importance in his development, for in each city he had to establish his reputation as a teacher and surgeon and to maintain it as a scientific investigator. Throughout his life he was a teacher, and this must have had its effect in developing his critical faculty and spurring him on to continue his investigations. His lectures, so far as could be judged, were on a very much higher level than was customary in the surgical lectures of the day. They were founded on pathology. The mind was caught (Sir George Makins continued) by the extreme simplicity of Lister's experiments, the directness of their purpose, and the fact that they were of a kind which could be readily understood and repeated; also by the thoroughness with which they were carried out. To put aside for the moment the great experiment which occupied his life, his collateral investigations had the same characteristics. The absorbable ligature was an instance in point. It struck him that certain animal materials might be absorbed by the tissues of the body. He selected catgut, first found out the source of the material, the mode of manufacture, its minute structure, its texture, tensile strength, and breaking strain, and then proceeded to experiment with it, burying it in tissues, and watching what happened. Lister, of course, realized that in investigating a vital problem vital tissue was being dealt with. The animal experiment being finished, he applied the process to man and watched the operation, and recorded the results with all the care he would have given to an experiment in the laboratory. In Lister's writings exactly the same characteristics were found. The language was forcible by its simplicity. Any layman could read his scientific papers as easily as a man of science. The majority of his experiments, it might be useful to add, were done in his own home; a certain number of them in a slaughterhouse. At the present day there was a tendency to think that good scientific work could only be done in large and very expensively equipped laboratories. People were sometimes inclined to forget the importance of the experiment in magnifying the apparatus.


JOSEPH LISTER
1827 - 1912
STUDENT AND HOUSE SURGEON
IN THIS HOSPITAL
1843 - 1852
CREATED BARON LISTER OF LYME REGIS 1897
AWARDED THE ORDER OF MERIT 1902

If Lister's methods were so simple and his expositions so clear, it might be asked, How was it that he had such difficulty in impressing his system upon the surgical world? It must be remembered that Lister was not the first prophet to cry in the wilderness. In France, when Pasteur tried to impress upon surgeons the advisability of passing the knife or forceps through a flame, so that they would thereby escape many dangers, he was asked, "What can a biologist teach us?" But the surgeons of to-day should not be too critical of their predecessors. The position of those men was one of great difficulty. It was quite easy for the present-day surgeon, who had been brought up in a bacteriological laboratory, to say that this or that was produced by a micro-organism, but when their predecessors were told that a micro-organism was the cause, for instance, of suppuration, and they were shown the micro-organism under the microscope, it was something so minute, so far outside the range of their previous observation, and it was so difficult for them to make experiments of their own on the subject, that it failed to make any great impression on their minds. Consequently, what Lister had to say was received with incredulity, and even from those who took up his system he had to encounter misgiving. The speaker recollected the impatience which a surgeon of the old school exhibited when a more enlightened assistant was trying to prepare a patient for him before operation. The measures themselves had to be undertaken during the performance of an operation on which all their powers were concentrated, and it was difficult for them suddenly to take a number of minute precautions. The surgical profession also was considerably influenced by tradition. The future historian would see many sidelights when he read Lister's words: "I venture to assert that no one who has not a belief in the germ theory of putrefaction can ever perform satisfactorily the antiseptic treatment of wounds." In passing, Sir George Makins lamented that the word "asepsis" should have received such general acceptation.

In principle there was no difference between the aseptic and the antiseptic system; both were based on the preventive principle. Lister did not put forward the antiseptic system as curative. To him it was a preventive treatment pure and simple, and no surgeon had a stronger belief in the part the powers of Nature took in the healing of the wound. Lister's father, who was opposed to a surgical career for his son, had said, "Let Nature do her own work," and that was a prophetic saying, because, after all, Lister's great achievement in life was to ensure that Nature *did* her own work. He retained a fondness for the use of chemical media in the treatment of wounds because he believed that by their use the method was more easily and safely carried out. At St. Thomas's Hospital some twenty years ago four fine new theatres were installed and equipped for what was called aseptic surgery, and Lister was asked to come and open them. He came the day before the opening and made an examination, and on the morrow he delivered a speech which was a scathing though not unfriendly attack upon the aseptic theatre.

Lister spent his life as a practising surgeon and teacher. Would the harvest of his work have been greater had he been an academic professor, or had he given his life to the laboratory? The answer must be in the negative. Lister combined the humanitarian, utilitarian, and scientific aim, and thereby became the ideal surgeon. His work, moreover, was that of a general surgeon. He embraced the whole field, not the narrow path of specialism. What was known as team work did not enter into Lister's conception of scientific investigation. He stood upon his own, drove no team, yoked himself in no unequal harness, but he led. Prior to Lister's time the surgery of injuries was almost wholly of a mutilating character. It consisted generally of removing the injured part. Few operations of expediency were ever performed. This, of course, was on account of the dreadful complications which so frequently followed the infliction of a wound. Such complications as secondary haemorrhage had now in the main been swept away. No man under 50 could give any description of what "hospital gangrene" was; with Lister it was a familiar condition. Yet the organisms which caused these infections were as all-pervading to-day as they were fifty years ago. Lister promptly seized the opportunities which his own system gave him to enlarge the field of practical surgery. He had no fear of opening a large joint or converting a simple into a compound fracture. Speaking of the influence of Lister in the surgery of the war, Sir George Makins said that the old scourges all held up their heads, and the cycle of experiment had to be carried through again, but the surgeons in this case started from a new standpoint, which was nothing less than the bedrock of Lister's principle, and the experiments were carried through with great celerity. Lister's predecessors, great and able men, advanced both the science and art of surgery, some by small steps and others by giant strides, but Lister did far more: he established a great principle which transformed the mode of thought and revolutionized the practice of surgery in his time, and which asserted itself in every ramification of the science of preventive medicine. His achievement was as great as that of any of the great men of science, art, or literature who preceded him, and in the benefits conferred upon mankind perhaps excelled them all.

Sir George Makins then unveiled the hospital tablet—a marble portrait in bas-relief, the work of Mr. Havard Thomas.

Address by the President of the Royal Society.

Sir J. J. Thomson, O.M., said that Lister's intimate connexion with the work of the Royal Society began after his success had been won. In the Society his work was not so much in the prosecution of research as in organization and administration, which, however necessary, gave less scope to individuality. The Society could claim to have recognized the merits of Lister at a very early stage in his career. He was elected a Fellow in 1860, when 33 years of age. His father and a brother were also Fellows, as was a nephew now. In 1880 he was awarded a Royal medal, and in 1902 the Copley medal, which the Royal Society considered the highest honour it had to bestow. Lister's connexion with the administration of the Society began with his appointment as foreign secretary in 1893, a position he held until elected president in 1895. He held that office for five years, during which time many important branches of work were undertaken, including the setting up of a committee for the investigation of tropical diseases and the establishment of the National Physical Laboratory. From his experience when serving on the Council with Lister he had been impressed by his courtesy. Discourtesy in him was unimaginable. His personality seemed to banish the microbe of discourtesy from the committee room as effectually as his discovery had banished the germs of foul disease from the surgical ward. His kindliness was conspicuous. In deciding on the bestowal of medals and prizes, he sympathized with the unsuccessful more than he rejoiced with the victors. He was a benefactor of humanity, a great man of science, and a most courteous and kindly gentleman.

Sir Joseph Thomson then unveiled the tablet which is to be erected in University College. This is rather smaller than its companion, and of different shape, but the portrait head is identical. It bears the inscription:

JOSEPH LISTER MDCCCXXVII–MCMXII
STUDENT ARTS AND MEDICINE MDCCCXLIII–MDCCCLII. FELLOW MDCCCLXI. CREATED
BARON LISTER OF LYME REGIS MDCCCXCVII
AWARDED THE ORDER OF MERIT MCMII.

Concluding Speeches.

Sir Gregory Foster, Chairman of the Memorial Committee, then invited the Vice-Chancellor of the University and Emeritus Professor of Anatomy in the College to accept the tablet on behalf of the College, and the Chairman of the Hospital Committee and the senior surgeon to accept the other tablet on behalf of the hospital and medical school. Sir Cooper Perry conveyed the thanks of the Senate for a life-like and artistic memorial of the greatest of British surgeons. Sir George Thane said that the tablet would be an incentive to the men to strive after the Listerian spirit. Sir Ernest Hatch accepted the tablet on behalf of the Hospital Committee, and Mr. Raymond Johnson gave a few extracts relating to Lister from the old minute books of the hospital. It appeared that he was recommended as house-surgeon at a "meeting" of the Medical Committee, when only one person attended—namely, the Dean. Mr. Johnson said that the tablet would be placed on the wall at the end of the entrance hall, exactly opposite the foundation stone.

Sir John Tweedy, treasurer of the committee, expressed the general feeling of admiration for the work of the sculptor, Mr. Havard Thomas, whose chisel, he said, fulfilled the two requirements of memorial portraiture, a good likeness and a work of art. He added that the subscribers numbered forty-four and the subscriptions amounted to £326, which was raised to £398 by interest on investment. Sir John Rose Bradford thanked the distinguished Presidents for unveiling the memorials, and the proceedings concluded.

The Ladies' Guild of St. Thomas's Hospital held its first annual general meeting since 1913 last week, under the presidency of Adeline, Duchess of Bedford. Mrs. Battle, who has been honorary secretary for nine years, was appointed chairman of the committee, replacing Lady Ballance, who has been elected president of the guild after many years of untiring work as chairman. In acknowledging a vote of thanks, Sir Arthur Stanley, treasurer of the hospital, said that the patients greatly appreciated the work of the guild, and he expressed the hope that many new members would be enrolled. Offers may be addressed to Mrs. Edred Corner, the new honorary secretary, at 37, Harley Street, W.1.

Begun in a modest fashion in November, 1914, the Anxiliary Hospital, 40, Weymouth Street, London, W., in March, 1915, became a recognized auxiliary hospital. From ten beds it increased in number to a total of fifty-five. Mr. H. T. and Mrs. Herring were responsible not only for the initiation of the scheme, but also for the daily burden of carrying it on for four and a half years. The hospital has provided beds free for 7,395 patients, of whom 4,300 approximately were patients sent from the 2nd London General Hospital, and the remainder men needing a home while on leave, including some from the Australian Command, and others, but all were soldiers. The medical and surgical and nursing staffs have received the thanks of the D.D.M.S. London District.

British Medical Journal.

SATURDAY, NOVEMBER 15TH, 1919.

THE FOOD OF EUROPE.

Dr. Wenckebach, who in 1911 left the Dutch University of Groningen to become professor of medicine at Strassburg, and in 1914 accepted a call to Vienna to become senior professor of medicine there, has recently been in this country attending the conference summoned by the Fight the Famine Council, of which Lord Parmoor is chairman. The conference met in private last week, but from a report issued by the Council, the questions to which most attention would appear to have been given were really of a financial nature. Sir George Paish, at one time adviser to the Treasury on financial and economic questions, who opened the proceedings, said that the outlook for Europe was that in the spring of next year it would be subjected to famine conditions; to avoid such a catastrophe the whole world must effect economy in consumption and supply all the food and raw material possible, whether for goods, cash or credit. The amount of credit required by France, Italy, Belgium, Germany, Austria-Hungary, Rumania, Serbia, and Jugo-Slavia—possibly by Russia also—came, he said, to an amount which was beyond the power of any one country to provide; it would be necessary for all countries to supply things needed on credit, and the countries giving credit must themselves be able to obtain credit. Mr. Paul Warburg, who was a member of the Federal Reserve Board of the United States, has, on his return to America from Europe, reported in the same sense, and has pointed out that prices must continue to rise as long as the leading countries spend every year billions more than they collect from taxation and cover the resulting deficiences by issuing additional currency and Treasury bills. This policy, if persisted in, must, he said, end in something like Russian or Austro-Hungarian conditions, where the savings of the past, invested in money securities, had been practically wiped out. To issue government obligations or currency for the purpose of paying idle men or providing below cost such things as transport and food, or for covering extravagant military or other expenditure, was an insane business practice which sooner or later must lead to the bankruptcy of every country indulging in such methods.

M. Avenol puts another aspect of the same matter in a letter published in *The Times* of November 10th. While recognizing that the nations of Central Europe are passing through a moment of extreme difficulty to which no European worthy of the name can pretend to be indifferent, he contends that the dominant fact in the situation of Western Europe is the devastation of the Franco-Belgian territories—regions whose industries and agricultural fertility, producing an abundance of coal, milk, butter, sugar, wheat, and meat, were among the richest of the whole continent. For months to come hundreds of thousands of men who would have been employed in getting coal or tilling the soil will be engaged in pumping mines, reconstructing factories, rebuilding dwellings, and restocking the farms plundered of their cattle. The absolute and utter desolation of the countries thus laid waste is one of the principal causes of the present critical state of things throughout the world. France has ceased to be self-supporting; foreign shipping, coal and foodstuffs, as well as financial credit, are matters of absolute necessity to her while she is striving to restore order among her ruins. There can be no doubt of the truth of M. Avenol's statements with regard to the desolation produced by the wanton acts of destruction perpetrated by Austria's ally.

We cannot, however, pursue further these financial questions, but we may note that Dr. Wenckebach, who arrived in Vienna in September, 1914, and, with short intervals, has resided there throughout the war, states that the value of money in Vienna had decreased until there is now no real scale of prices. The food position, which had been growing gradually worse, became extremely bad after the armistice and the break up of the Austro-Hungarian empire. The standard of living in Vienna became generally low, but some classes have suffered more than others. Illicit trade in food has reached immense proportions, the people benefiting being those actually engaged in it, who reserve food for themselves, and the rich, who have ceased to regard the nominal value of money in the purchase of food. He states that children in particular have suffered. A large number of cases of scurvy occurred, and shortly afterwards there was what he calls an "explosion of rickets." He saw also many cases of osteomalacia, and an unusual number of examples of late rickets.

It appears therefore that, apart from any question of quantity, the diet of children and young persons in Vienna must be defective in quality owing to lack of vitamines. Professor Wenckebach expresses his gratitude to the action of the Accessory Food Factors Committee, appointed jointly by the Lister Institute and the Medical Research Committee, in sending a mission to Vienna. The mission consists of Dr. Harriette Chick, assistant in the department of experimental pathology of the Lister Institute, and Dr. Elsie Dalyell, a former Beit scholar who has been working there. They were instructed, first, to make inquiries as to the prevalence of scurvy, rickets, and other disorders attributable to malnutrition, and to study carefully the dietaries which have led to such symptoms; secondly, to assist those organizations—the British Food Mission, the U.S.A. Food Relief Mission, the Friends' Mission—engaged in the distribution of food by acquainting them with the results of recent experimental work on accessory food factors; and, thirdly, to ascertain in the case of children the value of methods of curing deficiency diseases which have been found effective by experiments on animals.

The mission arrived in Vienna on September 12th and was very cordially received by Professor Wenckebach, who arranged a meeting at which a short paper was read summarizing recent work on accessory food factors, with special reference to the prevention and treatment of scurvy and rickets. Before this the members of the mission had visited the children's hospitals, day nurseries, and infant welfare stations to study the incidence of deficiency diseases among children. The food situation had been somewhat relieved by the food brought in by the Allies and by the American Child Feeding Association, which was supplying 100,000 children with one good meal daily. There was at that time an abundance of fresh vegetables and fruit, though at high prices; milk and butter could not be purchased openly, but a small daily allowance of milk was reserved for each child under one year. It is feared, however, that the limitation of diet, due to present conditions of food supply and

transport difficulties, makes it likely that scurvy will again appear during this winter. Outbreaks of scurvy were common in children's hospitals and institutions during last winter and spring; for instance, in the children's clinic of the university under the direction of Professor v. Pirquet thirty-five children at ages from 6 to 13 years were affected, out of a total of sixty-six. The mission, guided by the results set out in the memorandum on accessory food factors, of which we gave an account a short time ago, has urged the preparation of a supply of anti-scorbutic material in the form of preserved tomatoes, lemons, etc. The inspection of hospitals and infant welfare centres in Vienna left the general impression that rickets was almost universal among poorer children from 1 to 4 years of age; it was placed by various authorities at from 70 to 80 per cent. There was also noted a delay in general development, of which some extreme cases were seen, especially in a finely equipped modern hospital opened in 1915 for mothers and children. The mission was informed that outbreaks of war oedema had occurred amongst the poorest inhabitants of Vienna in the late spring and summer of 1917–18. In the summer of 1919 some hundreds of cases of osteomalacia occurred, but there was no epidemic of war oedema. The mission seems to have gained the complete confidence of members of the Viennese profession concerned with child welfare and the treatment of children's diseases, and has been greatly assisted by the British Relief Mission in Vienna. There appears every reason to hope therefore that the work of the mission will be of great value to the child population of Vienna, and that the results of the scientific observations made on so large a scale will add to our knowledge of the essentials, other than calories, of a healthy diet, and put to a practical test the recent work done chiefly in this country, in India, and in America with regard to the nature, prevention, and treatment of deficiency diseases.

FIFTY YEARS OF SCIENCE.

THE jubilee number of *Nature*, published last week, contains a review by many hands of the progress of the sciences during the last fifty years, a statement of their present position, and indications of the problems that are now being attacked. The number is of very great interest to anyone who desires to gain a general view of the movements in science. The articles are all short. Their value is that each is written by a master of the subject, who picks out the observations he considers of fundamental importance, and traces the rise, the fall, or the modification of theories. No science can get along without hypotheses. The true mark of a progressive science is that its most active spirits show themselves anxious to put all to the test of observation and experiment, and are ready to discard a hypothesis or modify a theory as new facts come to light.

No candid critic can accuse modern men of science of worshipping at old shrines. Not one of Sir Richard Gregory's contributors—and they include for medical science Sir Clifford Allbutt and Dr. C. J. Martin—is *laudator temporis acti;* all suffer from divine discontent. In fact, the strongest impression left by the perusal of this remarkable series of essays is that every science is in a state of flux, and that great changes are expected.

Sir E. Ray Lankester, in his essay on the foundation of biological sciences, says that the great event in the history of biology was the publication in 1859, ten years before *Nature* was founded, of Darwin's *Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life*, which gave a new conception of organic phenomena. The essayist is careful to quote the full title, perhaps because before ending he deals faithfully with physiology, which, he says, "has yet to come under the full influence of the Darwinian doctrine—'the preservation of favoured races in the struggle for life.' As yet there has been no investigation of the *development* and survival of functions. It is necessary to study their evolution from simpler types and to analyse by experiment the progressive series of chemical activities involved in digestion, secretion, excretion, and so on. At present physiology is as incomplete as morphology would be if no forms below terrestrial vertebrates had been studied."

A few pages further on we have Professor de Vries writing of the difficulties inherent in Darwin's conception that species originate by the gradual accumulation of infinitesimal, ordinarily invisible, variations on account of their utility in the struggle for life. The mutation theory has developed the doctrine of two types of variability—fluctuating variability, which connotes the small but always present differences among individuals of the same stock; and mutability, the larger sudden variations by which varieties are known to arise in horticulture. De Vries believes that the mutational impulse originates in the sexual cell before fertilization, and calls in Mendelism to explain some of the difficulties of his own theory. But, in fact, mutation, though it affects some details of Darwin's argument, does not touch his main thesis, and in the next article we find Professor Bateson asserting that as bearing on evolutionary theory modern work in Mendelism "leaves us much where we were. Progress in genetic physiology has been rather a restraining influence."

Remembering how common it is to find the belief in drugs replaced by a kind of therapeutic agnosticism, we will not forbear to quote from Sir Edward Sharpey Schafer's article on developments of physiology. He points out that the immense progress on the old lines of investigation has been correlated with the parallel development of the sciences on which physiology is based—physics and chemistry. But he goes on to say: "Nothing under the sun is ever entirely new. From the earliest times with which history deals, and doubtless even in prehistoric days, it was known that the functions of the body are affected by chemical agencies. For have not drugs, many of them of a potent, not to say poisonous, nature, been administered from time immemorial?" Nevertheless he says that fifty years ago no one suspected that the body itself produces drugs destined to influence its own functions, that certain organs pass chemical substances (hormones) into the blood to affect distant parts, and that many functions of the organism are regulated by these self-formed drugs, sometimes in conjunction with the nervous system, sometimes without it. The facts may give encouragement to the pharmacologist, and it indeed seems possible that his science is one of those which is about to undergo rejuvenescence.

Sir Edward Sharpey Schafer says that physical chemistry has more than all "enabled the physiologist to see—if still very dimly—into the processes which make up life itself further than could ever have been dreamed of" fifty years ago; and Professor J. C. Philip, who speaks for physical chemistry, rejoices that the physiologist, among others, finds valuable aid in the principles of his science. But ideas about physical chemistry are in a state of flux, and we have reached a stage in which the structure of the atom

itself is a matter of informed speculation and even of experiment. In investigations of the electric properties of gases it is possible, Sir J. J. Thomson tells us, to detect "the presence of a few thousand atoms, while the most delicate methods of chemical analysis will scarcely detect a million million." One result of these investigations is to show that at very low pressures the carriers of negative electricity are not atoms or molecules, but electrons, the mass of which is only about one 1,700th of that of the smallest known atom, that of hydrogen. These electrons can be obtained from atoms of every kind, so that they form an integral part of the normal atom, and their number is equal to the atomic number of the element. The electron, Sir Ernest Rutherford says in another article, is a disembodied atom of negative electricity which has hardly any mass, the mass of the atom being in the nucleus, which has a charge of positive electricity. Such observations have led to theories of the constitution of the atom, so that, to quote Professor Soddy's words, it is now regarded as a solar system, of which the massive central sun, comprising all but a negligible fraction of the whole mass, is an exceedingly minute positively-charged nucleus, attended by numerous rings or shells of the almost massless electrons. Now it appears that even the nucleus of the atom is no longer immune from the attacks of the physicist, for the latest results of Sir Ernest Rutherford on the passage of alpha particles through nitrogen make it appear that the nuclei of a certain exceedingly minute proportion of the nitrogen atoms struck by the alpha particle are shattered by the collision. The thoughts of physicists are turned towards the energy locked up in the atom. Its magnitude is shown by the study of the explosive disintegration of the atoms of the radio-elements. This change is attended by the liberation of energy a million times greater than is liberated in any previously known change of matter.

Finally, we have one of the fundamental bases of physics questioned by Einstein's generalized theory of relativity. At the joint meeting of the Royal Society with the Royal Astronomical Society on November 6th the Astronomer Royal announced that the measurements of the eclipse expeditions lead to the conclusion that the sun's gravitational field gives the deflection of light predicted by Einstein. Two out of his three predictions are held now to be verified, and the President of the Royal Society, who described the new observation as epoch making, suggested that it would probably have a bearing on electrical theory.

Do not these brief indications of what our contemporary has to tell fully justify the statement that every science, and not only biology and medicine, is in a state of flux?

THE ANNUAL MEETING, CAMBRIDGE, 1920.

As we have already announced, the eighty-eighth annual meeting of the British Medical Association will be held next year at Cambridge, under the presidency of Sir Clifford Allbutt, Regius Professor of Physic in the University. The last annual meeting of the Association in Cambridge was held forty years ago—in 1880—when Sir George Humphry was President. The meeting next year will take place a month earlier than usual, for the reasons given in the JOURNAL of October 25th. The proceedings will begin on Friday, June 25th, when the Annual Representative Meeting will commence its proceedings, which will be continued on the following week-days. The statutory Annual General Meeting will take place on the afternoon of Tuesday, June 29th, and Sir Clifford Allbutt will deliver his presidential address to the Association in the evening of that day, probably in the Senate House. The sectional meetings for scientific and clinical work will be held on the Wednesday, Thursday, and Friday, the mornings being given up to discussions, and the afternoons to clinical and laboratory demonstrations. Five sections—namely, Medicine, Surgery, Physiology and Pharmacology, Neurology and Psychiatry, and Pathology and Bacteriology—will meet on each of the three days. The following sections will meet each on one day: Obstetrics and Gynaecology, Tropical Medicine, Naval and Military Medicine, Electro-therapeutics and Radiology, Medical Education, Medical Sociology, and Venereal Diseases. There will be religious services on Wednesday, June 30th, at 5 p.m. The annual dinner, which it is hoped will be held in one of the larger college halls, has been fixed for Thursday evening. On Friday evening a popular lecture will be delivered; and Saturday, the last day of the meeting, will be set apart for excursions to places of interest in the neighbourhood. The various university and municipal buildings and the laboratories and lecture theatres of the medical school are all situated near the centre of the town, and are conveniently close to each other. The Guildhall, looking on to the Market Square, has been secured for use as a reception room, and the Annual Exhibition of drugs, instruments, and appliances will be held in the Corn Exchange, near at hand. There is ample accommodation for the work of the sections within the group of University buildings known as the New Museums, and from this Addenbrooke's Hospital is but a short walk, while the colleges, the university lodgings, and the principal hotels are nearly all within easy distances of one another and of the market place. The general plan for the meeting was laid down by the Arrangements Committee on October 17th, and was approved by the Council at its last meeting. The local Branch and Division have appointed as joint secretaries for the Cambridge meeting Dr. J. F. Gaskell and Dr. G. S. Haynes. A representative general committee is being constituted, and this in turn will appoint executive and other special subcommittees to work out the detailed arrangements for the Annual Meeting. We hope to publish in an early issue a list of the officers of the various sections.

A RETROSPECT OF NAVAL MEDICAL CONDITIONS.

AT the initial meeting of the new War Section of the Royal Society of Medicine on November 10th, the President, Rear Admiral Sir Robert Hill, delivered an address of special interest owing to the new information contained in his comparison of the casualties at the battles of Camperdown, the Nile, Trafalgar, and Jutland. He gave the complements of the various ships, the total casualties per cent. of their complements, and the total British forces engaged in those four battles—namely, 8,221, 7,985, 17,772, and about 60,000. Out of the 6,688 total casualties at the battle of Jutland, 674 were wounded and 6,014 were drowned or killed outright, no fewer than 5,562 of the latter being in ships sunk with all or almost all hands. The total casualties amounted to 11.14 per cent. as compared with 10, 11.2, and 9.5 per cent. in the battles of Camperdown, the Nile, and Trafalgar. It is noteworthy that neither the total force nor the complements of the ships at Trafalgar are given in any historical account of the battle, and that these figures have now been obtained from the Admiralty muster books preserved at the Public Records Office. The analysis of the casualties at Jutland is another important piece of knowledge contributed in this address. The earlier part of the address contained a picturesque account, with graphic quotations, of the state of the Naval Medical Service between 1795 and 1840, a period with a glorious naval history but with few attractions from the point of view of the naval surgeon. There were, however, as was shown by a number of examples, many medical men of

originality and professional ability among the surgeons, in spite of their difficult conditions. There was no sick-berth staff until 1840, the surgeon's mates were sometimes quite ignorant, and the surgeon had to provide some at least of his drugs and professional equipment out of his own pocket. Sir Robert Hill hopes that in addition to providing opportunities of keeping up friendships formed in the war between the permanent and temporary medical officers of the various services, the War Section will provide a skeleton medical organization which, in the event of another war, would facilitate the utilization of the various branches of the profession with the minimum waste of specialized talent.

NORTH-WEST FRONTIER OPERATIONS.

We referred on two occasions last August to White Papers containing correspondence between the Secretary of State and the Viceroy of India in regard to medical arrangements and comforts for troops on the North-West Frontier. Another White Paper has now been issued giving further correspondence, and to it Mr. Montagu has prefixed an introductory note. He states that the initial deficiencies noted in the previous White Paper were due to several causes—the rapid advance to Dakka, the fact that the political and tribal situation did not admit of the prior installation of a piped water supply through the Khyber, and to the sudden defection of the Frontier Militia. The field army normally mobilizes behind a screen composed of Frontier Militia and the frontier outposts. Circumstances necessitated a departure from this plan, and for a short time there was a deficiency of stores and equipment, which had to be moved hurriedly to places on the frontier. Further, the outbreak of cholera among the civil population at several points along the frontier added greatly to the gravity of the situation. From a telegram dispatched by the Viceroy on August 20th it appears that the epidemic of cholera among the civil population of the Punjab and the North-West Frontier Province was severe and widespread; the disease appeared amongst troops and followers at fifty different and far distant posts or stations. The number of cases at any post, and the time taken to stamp out the disease at any one place, depended mainly on the number of Indian followers present. It was often practically impossible to bring undisciplined mule and other transport drivers under control, so that when their number was large and they were suffering from intense heat no methods proved successful in restraining them from drinking polluted water, and in their turn perhaps polluting water channels not previously contaminated. Regular units accustomed to disciplinary control escaped. It is said that the comparatively short time taken in stamping out the disease at every post where it occurred, and the complete immunity of certain corps in which sanitary discipline was good, are evidence of the zeal and energy with which prophylactic measures were enforced. The same telegram admits that the operations disclosed the great need of more motor ambulance convoys. On the outbreak of hostilities only one was immediately available, although two others existed on paper. The War Office supplied one and a half convoys from Mesopotamia, and two more were improvised in India. The Government of India considers that motor ambulance convoys should be maintained in peace if they are to be available at the outbreak of hostilities, but adds that expenditure on medical preparation is to be considered on its merits with other proposals, and *pari passu* with the capacity of frontier roads to take motor transport. The opinion in favour of establishing motor ambulance convoys in peace seems to be further qualified by the statement that until the Government of India can arrange for the employment in peace of sufficient motor ambulances to meet the needs in war, and until frontier communications have attained the requisite standard for mechanical transport, wheeled ambulances must continue to make up the deficiency, with unavoidable delay in evacuating sick. Delays in the installation of ice and soda-water machines, water supply and electrical fittings, are admitted and attributed to shortage of Royal Engineer technical officers. The total battle casualties from May to August 9th given in the telegram were reported in our issue for last week (p. 614). In a telegram dated October 4th the Viceroy states that the R.A.M.C. officers from Mesopotamia detained in India were: Special Reserve 29, Territorial 8, temporarily commissioned 70. Of these, 5 were granted regular commissions, and 22 were sent to the United Kingdom before the end of August; so that on September 1st 80 remained for disposal, of whom 31 were transferred to the United Kingdom during that month, leaving 49 remaining in India on October 1st. Of these, 38 were ordered home early in October, 2 have applied for regular commissions, and one has extended his service for one year at the revised rate of pay, leaving 8 only to be disposed of, for whom embarkation orders were about to be issued. The order of dispatch was determined by marks given on various grounds, special consideration being paid to claims of a compassionate nature, coupled with age, length of service, and time spent abroad. The Viceroy states that as the result of strong representations made regarding the loss incurred by officers on sterling rates of pay (24s. a day) owing to the rise in the value of the rupee, the desirability of substituting a remuneration of a fixed monthly salary in rupees was recognized and the issue of pay at the rate of Rs. 750 a month inclusive was sanctioned from July 1st, and of Rs. 800 to officers willing to re-engage for one year from that date. The general effect of the Viceroy's telegram is, first, to admit defects at the beginning of the operations, which he attributes mainly to enemy action, and, secondly, to traverse most of the criticisms, especially those with regard to provision made for the treatment of cholera. We give elsewhere in this issue the observations of the Secretary of State for India on the allegation that in the operations on the North-West Frontier the recommendations of the Mesopotamian Commission were ignored, and his statement as to the steps taken to alleviate the discontent in the I.M.S.

LABORATORY AND RESEARCH WORKERS.

The Council of the British Medical Association, at the request of the Annual Representative Meeting in 1916, appointed a committee to confer and act with the Science and State Committee of the British Science Guild in the matter of the inadequate recognition and recompense by the Government and other bodies of medical workers in the field of science. A joint meeting was held in September, 1916, at which it was decided to obtain authentic information as to the salaries, security of tenure, and pensions of medical men engaged in scientific research. The pressure of business and anxieties during the war stood in the way of any further action, but the matter has now again been taken up, and a meeting was held last week, when it was decided that the committee should in future be known as the Joint Committee of the British Medical Association and the British Science Guild on Awards for Medical Discovery. The Committee also decided that each of its members should collect information regarding medical research work and discovery already carried out, in relation to the war or otherwise, which he considers deserving of recognition and recompense by the Government or other bodies. Sir Ronald Ross, M.D., K.C.B., F.R.S., a member of the Executive Committee of the British Science Guild, has undertaken to collect and edit information thus obtained and present it in the form of a report to the Committee as a foundation for further action. Before the meeting Sir Ronald Ross entertained at luncheon at the Ritz Hotel several members of the Committee, and others; the guests included Sir Alfred Keogh, G.C.B., Sir Richard Gregory (Editor of

Nature), Professor Bayliss, F.R.S., Dr. Leiper (of the London School of Tropical Medicine), Professor Benjamin Moore, F.R.S., Professor Sommerville, Mr. E. B. Turner, one of the representatives of the British Medical Association, Colonel Nathan Raw, M.D., M.P., and Dr. Dawson Williams (Editor of the BRITISH MEDICAL JOURNAL). Sir Clifford Allbutt and Professor J. S. Haldane, who had hoped to attend, were unable to be present. Sir Ronald Ross has already given much time to the question, which he was, we believe, the first to raise. He may be trusted to produce a report which will be of the utmost value in any action it may be decided to take. It may be recalled that the British Medical Association, on the advice of its Science Committee, has been giving attention to the question of the conditions of employment, remuneration, and superannuation for laboratory and research workers. It has appointed a Medical Research and Laboratory Workers' Subcommittee, and as a preliminary step the Association has drawn the attention of the Board of Education to the fact that the emoluments of whole-time professors in many of the medical schools of the University of London amount at the present time to no more than £600 a year, whereas in 1913 the Royal Commission on University Education in London expressed the view that the minimum salary of a professor in the faculty of medicine should be £1,000. The salaries of assistants and demonstrators are correspondingly exiguous. The Subcommittee has recently made inquiries in regard to the present terms of service, and the information received in reply has been considered at a meeting of the Subcommittee this week.

THE CINEMA IN OBSTETRIC TEACHING.

IN the Obstetrical Section of the Royal Society of Medicine, on November 6th, Dr. G. Drummond Robinson, obstetric physician to the Westminster Hospital, demonstrated a cinematograph film illustrating the processes of normal labour, which is intended to improve the teaching of midwifery to medical students and midwives. The film has been produced under Dr. Drummond Robinson's direction by Mr. Joseph Best, B.Sc., and is published by the Cartographic Studios, 32, Charing Cross, London, S.W.1. The complete process of labour from the first dilatation of the os uteri to the expulsion of the placenta in both vertex and breech cases is shown by "animated diagrams" and by motion photographs of actual labours. By the use of the film the teacher can describe and explain on the screen each phase of labour, special points can be emphasized, and the film can be stopped at any moment, or repeated. In representing the animated drawings a certain jerkiness is hard to avoid without greatly increasing the expense by the preparation of many hundreds of additional diagrams. The film shown by Dr. Drummond Robinson comprised some 25,000 photographs from life and diagrams, and took about half an hour to project on the screen. In the discussion following the demonstration Sir Francis Champneys agreed that this film marked a distinct step forward in the teaching of medical students and nurses. He thought the method, when perfected, would give most valuable aid in imparting correct knowledge of the processes of labour. Dr. T. W. Eden spoke in appreciation of Dr. Drummond Robinson's pioneer production, regarding it as most useful for the purpose of preliminary tutorial classes, and equally applicable to the demonstration of operative proceedings. While satisfied as to the value of the photographs of actual labours, he thought care was needed in the use of the "animated diagrams" owing to the air of artificiality conveyed by their representation. Dr. Mary Scharlieb also expressed appreciation of the method. Mr. McAdam Eccles spoke on the general subject of the cinematograph in medical education, pointing out that the method was as yet in its infancy. The pooling of films by medical schools, he added, would greatly reduce the cost. Dr. Drummond Robinson, replying to the discussion, agreed with Dr. Amand Routh and other critics as to certain defects in the pictures shown, some of them due to disadvantages inherent in the method. He wished it to be understood that he did not regard this particular film as the last word; on the contrary, it was the first. Some regret was expressed during the discussion that more appreciation has not been shown in this country of the French efforts to make the cinematograph of real value in medical education. There is a certain amount of truth in this complaint; we believe we are right in saying that the first effort in this country to show the capabilities of the cinematograph in this respect was made as long ago as 1898. During the annual meeting of the British Medical Association in Edinburgh that year, Dr. Doyen of Paris gave a cinematograph demonstration of various operations performed by himself. The moving pictures then shown were, considering the date, extraordinarily good, but, possibly in order to avoid jerkiness, the films were wound off so quickly that Dr. Doyen seemed in one case to be performing a conjuring trick rather than an operation.

THE REGISTRAR-GENERAL'S DEPARTMENT.

THE whole administration of the department of the Registrar-General of Births, Deaths, and Marriages, including the administration of the census of the population, has been transferred to the Ministry of Health. In the pamphlet on the Ministry of Health giving reasons for its establishment as one of the principal departments of the State, issued by the British Medical Association in April, 1918, when the constitution of the new Ministry was under discussion, this change was recommended. It was pointed out that one of the main duties of a Ministry of Health would be the prosecution of scientific research by, among other means, the analysis of statistics, and it was observed that the Registrar-General's department could easily be transferred directly to the Ministry of Health. At that time the Registrar-General reported to the President of the Local Government Board, through whom responsibility to Parliament was maintained, but the office was practically an independent Government department. It was pointed out that the information it was able to supply was essential to efficient health administration, both central and local, and it was suggested that on its transfer to the Ministry of Health it should take over the preparation of certain statistics such as those furnished under the Act for the Notification of Infectious Diseases. Dr. Addison has appointed Mr. S. P. Vivian, an assistant secretary in the Ministry of Health, to be Deputy Registrar-General of Births, Deaths, and Marriages.

THE ROSE RESEARCH FELLOWSHIP.

WE are glad to be able to announce that through the munificence of Mrs. L. B. Rose, of Bedford, St. Bartholomew's Hospital medical school is the recipient of a sum of money adequate to endow a Fellowship for research into the pathology and treatment of lymphadenoma. The donor has provided sufficient funds to make it possible for the research into this disease to be carried on for a period of ten years, if necessary. Moreover, the sum will suffice to support a second investigator should the board of electors to the Fellowship think this desirable; working expenses also are provided for. This generous endowment will, no doubt, attract workers from all parts of the country, since it is the intention of the medical school of St. Bartholomew's Hospital to throw open the Rose Research Fellowship for general competition. Lymphadenoma is still a disease about which little is known either from the pathological or the therapeutic side; the subject chosen for investigation, therefore, lends itself to intensive research. It is expected that the work will be carried on for the most part at St. Bartholomew's Hospital; but, recognizing that the material for research is comparatively scanty, those responsible for the foundation of the Fellowship have given power to the electors from time to time to

permit a part of the work to be performed elsewhere. In this country gifts for the endowment of medical research are all too rare, and we hope that others in a position to do so will follow Mrs. Rose's generous example.

CAMBRIDGE INSTITUTE OF PARASITOLOGY.

The Senate of the University of Cambridge gratefully accepted on November 8th an offer by Mr. and Mrs. P. A. Molteno to provide funds for the erection and maintenance of an institute for parasitological research. In a letter intimating his intention Mr. Molteno states that he has long been interested in Professor Nuttall's work on parasitology and regards it as of the very greatest value to the Empire and particularly to Africa, the home of so many diseases transmitted by and through parasites. Researches already carried out by Professor Nuttall have, Mr. Molteno goes on to say, produced results of immense benefit in the control and prevention of diseases both of men and of animals, and he recognizes that research of this nature is indispensable if Africa is to be made habitable for white men and for animals of European stock. Being impressed by the absence of necessary accommodation for carrying on such research work at Cambridge Mr. and Mrs. Molteno offered a sum of £20,000 to provide a suitable building, with its fittings, for this work, and a further sum of £10,000 to form a fund to provide an income for the upkeep and maintenance of the institution, any surplus being used to further research carried on in the institute at the discretion of the director. The letter goes on to express approval of the plans drawn up by Mr. Harry Redfern, F.R.I.B.A., for the proposed institute as it would appear on the Downing site at Cambridge. The plans would afford accommodation for the library and museum, and rooms for the professor and persons carrying on research work. Mr. Molteno is a member of Trinity College, Cambridge, and a graduate of the university, and his beneficent gift is evidence of his high regard for the university, and for the great work which it has done and is carrying on.

THE STANDARDIZATION OF GAS.

The Fuel Research Board, as the result of an inquiry into gas standards, has made certain recommendations which in the main have been adopted at a recent conference of the board with producers and consumers. The President of the Board of Trade is shortly to introduce a bill giving effect to these recommendations. The outstanding change proposed is that gas shall in the future be charged according to the number of heat units supplied to the consumer, instead of by volume as at present. The number of cubic feet registered in the meter will be multiplied by the declared gross calorific value of the gas per cubic foot, which value will be continuously measured and recorded by a standard form of calorimeter checked by referees. The gas undertakings will also be required freely to adjust or replace burners according to the calorific value of the gas they deliver. The unit to be adopted in charging the consumer is to be known as the "therm"; it is 100,000 British thermal units, equalling the energy required to raise 10,000 gallons of water 1° F.; in other words, one "therm" will raise sixty gallons of water to boiling point, supposing the original temperature of the water to have been 50° F. Subject to the acceptance of these and certain other stipulations, the gas undertakings are to be free to deliver any mixture of combustible gases free from sulphuretted hydrogen, and not containing, during the next two years, more than 20 per cent. of inert constituents, nor more than 18 per cent. during the two years thereafter, nor more than 15 per cent. subsequently to that. They are also, within a period of five years, to supply gas at such pressure that under normal conditions of equipment there will be a pressure of not less than 2 in. of water on the gas in any main or service pipe of 2 in. diameter and upwards.

FLORENCE NIGHTINGALE MEDAL.

At an International Conference of Red Cross Societies, held at Washington in 1912, it was decided to establish a medal both as a memorial to Florence Nightingale and to give international recognition to outstanding work by trained nurses in all parts of the world. A committee was appointed by the International Red Cross Committee in Geneva to make the necessary arrangements. It was originally decided that not more than six of these medals should be distributed either annually or in alternate years to the six most deserving trained nurses, to be selected by the International Committee from recommendations submitted by the various national Red Cross Societies, accompanied by particulars showing the grounds on which each recommendation is made. Owing to the outbreak of the war in 1914, the first awards of this medal were postponed, and the International Committee has now informed the British Red Cross Society that it is intended to award fifty of these medals in January, 1920, and has requested the Society to submit recommendations before the end of the year 1919. To enable the Society to comply with this request it asks that the names of trained nurses who have, especially during the war, proved themselves to be exceptionally deserving of recognition may be brought to the notice of the British Red Cross Society. A recognized training school is one in which there are not less than 100 beds, and where there is a resident medical officer. Full particulars of the services on which the recommendations are made and the names of the officials who can personally vouch for the accuracy of the information given should be forwarded as early as possible, and in no case later than November 30th, for consideration and selection. Recommendations should be sent (marked on the outside "Nightingale Medal") to the Secretary, British Red Cross Society, 83, Pall Mall, London, S.W.1. The medal is in silver and enamel, consisting of a portrait of Florence Nightingale, "The Lady with the lamp," with the words "Ad memoriam Florence Nightingale 1820–1910." On the reverse, surrounding a space reserved for the name of the recipient, is the inscription: "Pro vera misericordia et cara humanitate perennis decor universalis." The medal is attached to a white and red ribbon, on which is displayed a laurel wreath in green enamel surrounding a red cross on a white ground.

SIR CLIFFORD ALLBUTT'S PORTRAIT.

At the meeting of the Council on November 5th the Chairman, Dr. J. A. Macdonald, announced that Sir William Orpen, K.B.E., R.A., has consented to paint the presentation portrait of Sir Clifford Allbutt, President of the Association, and that a mezzotint engraving of the portrait will be executed by Mr. H. Macbeth-Raeburn. We understand that Sir Clifford Allbutt has given his first sitting to Sir William Orpen this week. It will no doubt be a source of satisfaction to those who have subscribed for the portrait to know that the work is in the hands of so distinguished a painter, whose brilliant portraiture is admired no less in France than in this country.

The Joint Peace Council of the British Red Cross Society and the Order of St. John of Jerusalem has been completed. It now consists of twenty-four members appointed by each society. The first meeting of the new council was held this week.

The Royal Society has awarded the Copley medal to Professor W. M. Bayliss, F.R.S., for his contributions to general physiology and to bio-physics, and the Davy medal to Professor Percy Frankland, F.R.S., for his work in chemistry, especially that on optical activity and on fermentation. One of the Royal medals is awarded to Professor J. Bretland Farmer, F.R.S., for his notable work on plant and animal cytology. Among the members recommended for election to the council at the anniversary meeting on December 1st are Mr. J. Barcroft, C.B.E., Sir Walter Fletcher, and Dr. Sidney Martin.

Medical Notes in Parliament.

Training of Disabled Officers and Men.—Sir Robert Horne, in reply to Lieutenant Commander Dean, furnished on November 5th a written statement as to the training of disabled officers and men. He explained that the training schemes administered by the Ministry of Labour fell under three heads: (1) Industrial training; (2) training for commerce and the professions; (3) training of ex-officers under the Royal Pension Warrant. The first was administered by the Training Department, the second and third by the Appointments Department, in conjunction with the Educational and Agricultural Departments for England, Scotland, and Ireland. Facilities for training under the second head were not restricted to the disabled; all ex-officers and men of similar educational promise were eligible. It was not possible to give certain figures for the disabled and non-disabled, but the following table showed the approximate number of applications received, and grants sanctioned for disabled men and non-disabled men together under the maintenance and training grants scheme:

Dealt with by—	Applications.	Grants Sanctioned.
Ministry of Labour	21,000	7,700
Educational departments	31,000	19,000
Agricultural departments	6,500	2,000

The total number of applications for training from ex-officers under the Royal Warrant for Pensions was about 450. The following table showed the number of cases approved up to date, distinguishing cases dealt with by the Ministry of Labour from those dealt with by the Educational and Agricultural Departments respectively.

	Approved and in training.	Approved but not yet in training.	Completed training.	Total.
Ministry of Labour	95	34	48	177
Educational departments	31	1	26	58
Agricultural departments	102	15	25	142
Totals	228	50	99	377

In reply to a further question by Mr. Hirst, Sir Robert Horne said that the total number of men, other than ex-officers, in training in a whole country was about 12,000. The number known to be waiting and qualified for training was about 20,000. The total number trained with State grants since training began was about 18,000.

Pensions, Awards, and Appeals.—Captain Loseby, on November 6th, asked whether the Pensions Ministry had adopted the recommendations of the Select Committee on Pensions that soldiers appearing before medical boards should be informed immediately after examination, of the degree of disability, translated into terms of money, at which they had been assessed. Sir L. Worthington-Evans replied that as soon as the medical appeal boards were in operation in the regions, and in most regions they were, the pensioner would be told the degree of disability found by the board which examined him. In reply to a further question he said that medical appeal boards had now been set up, to which all men could appeal who were dissatisfied with the degree at which their disability was assessed. But he could not make any announcement on the question of granting a statutory right of appeal on assessment in cases of permanent award. The men concerned would be told by the board that examined them what was their degree of disability, and they would have the right of appeal. In reply to another question by Captain Loseby, Sir L. Worthington-Evans said that as each region was set up arrangements were made to ensure that the finding of the Medical Board of the Ministry should not be amended without the agreement of the board which examined the man or of a board which would re-examine him.

Pensions Appeal Boards' Arrears.—Captain Loseby also asked, on November 6th, to what extent pensions appeal boards were still in arrear with their cases, and what steps were being taken to assist disabled men during the period that the appeal was pending. Sir L. Worthington-Evans assumed that the question referred to the pensions appeal tribunals, which had been reconstituted, as from November 1st, under the jurisdiction of the Lord Chancellor, in accordance with the provision the War Pensions (Administrative Provisions) Act, 1919. A great improvement had recently been made. The cases in hand in May last numbered 16,000; in August the number was reduced to 11,000, and now to 6,000, including cases in the hands of local committees and those adjourned at the request of the appellant. Local committees were authorized, in cases where the medical referee was of opinion that the appeal should succeed, to make recoverable advances up to the probable rate of pension. The Ministry, however, was considering the simplification of the preliminary procedure in these appeal cases, so as to lessen the period of waiting, and make the present extensive provision of recoverable advances unnecessary. Mr. Houston inquired whether the decision of the appeal boards was final, or whether when fresh circumstances were brought to light a case could be reopened? Sir L. Worthington-Evans said that the decision of the appeal tribunals was final, but it had been his practice, when they were under his control, if really new evidence was subsequently discovered, to communicate the facts to the president of the tribunal, leaving it to him at his discretion to order a new trial if he thought proper; otherwise their action was final.

The Standardization of Artificial Limbs.—Sir L. Worthington-Evans, in reply to Major Cohen, on November 6th, stated that the report of the Bacon Committee, which inquired into the question of the standardizing of artificial limbs, had been adopted in its entirety, except the recommendation that in every case the disabled man should have a permanent peg-leg in addition to the mechanical limb which was to be provided in duplicate.

The Claim of Suicides' Dependants.—Mr. R. Young asked, on November 6th, whether the Pensions Minister was aware that cases were continually arising where discharged soldiers invalided from the army, many of whom had served abroad, committed suicide as a result of their physical and mental condition; and that the dependants of such soldiers were not entitled to a grant or pension under the terms of the Royal Warrant. He asked whether the Minister would arrange for such cases to be placed before those responsible for the administration of the Prince of Wales's Fund, with a view to all needy and deserving cases being assisted from the Fund. Sir L. Worthington-Evans, in a written answer, said that the statement by Mr. Young did not correctly represent the position under the Warrant. In many suicide cases it was possible to grant full pension to the dependants. Each case must be considered on its merits, as the grant of pension depended upon being able to connect the man's mental condition which caused him to commit suicide with his military service.

Tuberculosis in Ex-Service Men.—In a written reply to Lieut.-Colonel Raw, on November 10th, Dr. Addison said that the report of the Select Committee on Tuberculosis had already received careful consideration by the department, and an announcement of the increased capital warrant with a view to stimulate the rapid provision of additional sanatorium and hospital accommodation for the treatment of tuberculosis was issued on November 3rd. A scheme for the immediate provision at existing sanatoriums of facilities for the training of tuberculous ex-service men in suitable occupations had been prepared, and he hoped to be in a position to make an announcement in a few days. In reply to Mr. Finney he said that immediate steps were being taken with a view to a lagre addition being made in the amount of accommodation available for the residential treatment both of ex-service men and of civilians suffering from tuberculosis.

The Qualifications of Dentists.—Mr. Godfrey Locker-Lampson asked whether it was intended to introduce a Bill to give effect to the report of the committee appointed to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists Act. Sir Tudor Walters, replying for the Minister of Health, said it was intended to introduce such a measure, but the issues involved were complex and numerous, and must be considered in relation to other necessary elements in the development of health services for the community. Hence no statement could yet be made as to the precise lines of such legislation.

Registration of Nurses Bill.—Dr. Addison, on November 6th, introduced the Registration of Nurses (No. 2) Bill. It will be recalled that No. 1 Bill was brought forward by private members, and, in face of differences of opinion in the Commons and also in the Lords, was not pressed.

Nursing Service in India.—In reply to Colonel Yate, on November 5th, the Secretary of State for India said that the bonus granted by Army Order 300, of August 18th, 1919, to members of Queen Alexandra's Imperial Nursing Service and other nurses on British rates of pay, had been extended to the Queen Alexandria Military Nursing Service for India and other ladies nursing in Indian Military Hospitals on rupee rates of pay. The recent appointment of some 250 temporary nurses should be sufficient to enable the Indian Government to give relief to the permanent staff in the matter of leave.

Women Discharged as Medically Unfit.—Sir Owen Philipps asked the Pensions Minister, on November 5th, whether he could state the number of women who had been discharged as medically unfit after a period of service with the Women's Branches of His Majesty's Forces, and whether he had in contemplation the extension to the women's branch of the service of the operation of the system of granting disability pensions or gratuities which at present was applicable only to discharged men? Mr. Forster replying to the question so far as it affected the Army and the Royal Air Forces said the numbers were approximately 7,000 in the case of the army and 1,300 in the case of the Royal Air Force. It had never been proposed, and it was not intended to propose, that these women should be placed on the same footing as soldiers. They came under the Injuries in War Compensation Scheme for injuries and sickness abroad, and under the Workmen's Compensation Act and National Insurance Act respectively for injuries and sickness at home.

Daily Cost of the Army per Head.—Mr. Forster, in a written answer to Major Glyn, stated, on November 6th, that the current rate of army expenditure divided by the number of all ranks serving, was about 16s. 8d. a day.

England and Wales.

LIVERPOOL MEDICAL INSTITUTION.

THE first ordinary meeting of the Liverpool Medical Institution was held on November 6th, the President, Mr. W. Thelwall Thomas, in the chair. Major W. H. Broad read a note on the blinded soldier as a masseur. He emphasized the necessity of skilled training in massage, now more than ever required in orthopaedic surgery, and said that this occupation was eminently suitable for the blinded soldier. Delicacy of touch, combined with cheerfulness of disposition, were characteristic of the men he had trained. He drew attention to the fact that a central institution for blind masseurs was in process of being established where, under medical supervision, massage would be carried out, and expressed the hope that the medical profession would support it, and thus enable the blinded soldier to earn his livelihood. Dr. R. W. MacKenna read a note on indolent sores of the finger, which will be published shortly. Professor Beattie read a paper on cerebro-spinal meningitis from the bacteriological standpoint. He described four types of meningococcus, and said that a homologous serum gave better results than polyvalent meningococcal serum. The mortality was always considerable, and he advised the immediate disinfection of the nasopharynx of contacts by some of the hypochlorous antiseptics now in vogue. In many cases lumbar puncture alone benefited, and when antimeningococcal serum was given it should be given daily. Several members took part in the discussion.

LONDON HOSPITALS' EXPENDITURE IN 1918.

King Edward's Hospital Fund for London has issued its statistical report[1] on the ordinary expenditure of London hospitals in 1918. This is the sixteenth year for which Mr. H. R. Maynard, the secretary, has analysed the public accounts and returns made to the Fund. The report again appears in a reduced form, partly for the sake of economy in printing, postage, and paper, and partly because most of the material useful in ordinary times would be useless under war conditions. The 109 hospitals whose accounts are reviewed are those applying for grants from the Fund, together with St. Bartholomew's and the Cancer hospitals; they provided a total of 11,566 beds in average daily occupation during the year. The in-patients admitted were 145,212 in number, while 1,203,573 persons attended at the out-patient departments. Of the in-patients just over 27,000 were naval and military patients treated by understanding with the authorities; they represented nearly 32 per cent. of the total average occupied beds. The demand for beds on account of the war led to an increase of 1,800 in the number of occupied beds, but the number occupied by civilian patients was reduced by 1,885. The total ordinary expenditure at these hospitals amounted to £1,946,155; whereas on an average 1.5 per cent. fewer beds were occupied than in the previous year, the total ordinary expenditure was 12.87 per cent. greater. The contributions from the authorities towards the cost of naval and military patients was rather more than 17 per cent. of the total ordinary expenditure. As compared with 1913, the London voluntary hospitals had last year to provide out of normal sources, for an additional working outlay of £468,470, being an increase of 41 per cent. The corresponding increase in 1915 was only about 4 per cent.; in 1916, 13 per cent.; in 1917, 27 per cent. Now that many of the naval and military beds have been evacuted, and are available for civilian patients, the hospitals have to provide the whole cost of maintenance, unaided by capitation grants from the Admiralty and War Office. This will greatly increase the strain on hospital finances due to the general rise in prices.

MILK FOR CHILDREN AND MOTHERS.

In February, 1918, orders were issued by the Food Controller and the Local Government Board empowering local authorities to arrange for the supply of milk for expectant and nursing mothers, and for children under 5 years of age, at cost price, less than cost price, or free, according to the circumstances of the case (BRITISH MEDICAL JOURNAL, February 23rd, 1918, p. 242, and March 9th, 1918, p. 299). The Ministry of Health has now issued a circular to county councils and sanitary authorities pointing out that the recent order by the Food Controller raising the maximum prices of milk on and after October 1st, 1919, may increase the number of expectant and nursing mothers and young children who will be unable through lack of means to obtain a supply of milk adequate to their needs. The Minister therefore desires to impress on local authorities the importance of making full use of the powers under the Orders of 1918, and the Maternity and Child Welfare Act. Local authorities who have already arranged for the supply of milk to necessitous mothers and young children are instructed to consider whether any extension of these arrangements is required, and those who have hitherto made no arrangements should carefully consider the question of doing so without delay, in each case after obtaining a report of the local circumstances from the medical officer of health. The Ministry's grant for maternity and child welfare is available, and will amount to half the expenditure on approved schemes. The quantity of milk should be prescribed by the M.O.H. or the medical officer of the maternity and child welfare centre working in co-operation with the local authority, or by an authorized person, and the amount should ordinarily be that set out in the circular letter of the Local Government Board of February 9th, 1918, namely:

(*a*) For children under 18 months not more than one and a half pints daily; (*b*) for children between 18 months and 5 years not more than one pint; (*c*) for expectant and nursing mothers, quantities certified by the officer above mentioned.

If dried milk, or preparations of milk, are used, the quantity should be such as would, when properly reconstituted, approximate to the quantities of fresh milk given above.

The Food Controller has already issued instructions authorizing the issue by the Food Control Committees in districts where there are milk priority schemes, of priority certificates for one pint of milk daily for expectant mothers during the last three months of pregnancy, and the preferential allotment of milk up to one and a half pints daily for children under 18 months, the mother being entitled to use the child's allowance when she is nursing the child. Doctors, health visitors, and midwives should be asked to report to the M.O.H. any expectant and nursing mothers who in their opinion need an additional supply of milk. The question of the cases in which milk should be supplied at cost price, or free, is left to the discretion of the local authority. The Minister of Health trusts that all possible steps will be taken on the lines suggested in this circular[1] to secure that expectant and nursing mothers and young children shall not suffer during the coming winter from a shortage of milk owing to inability to obtain a sufficient supply at prices which they can afford to pay.

Scotland.

GLASGOW MEDICAL DINNER.

ON the evening of November 4th the Glasgow area of the British Medical Association gave a complimentary dinner at the Grosvenor Restaurant to the medical practitioners of the city who served overseas with the forces during the war. The chairman, Principal Sir Donald MacAlister, and the large company took their seats to the sound of pipes. After the loyal toast had been honoured, the chairman asked all present to drink in reverent silence to their fallen comrades, whose names he read. The company then stood in silence while the "Flowers o' the Forest" was played. The toast of the "Imperial Forces" was proposed by Sir Thomas Dunlop; and Captain C. H. Fox, R.N., in his reply, said that at the armistice 1,025 civil practitioners were serving with the fleet; in the battle of Jutland, out of 180 medical officers serving in the Grand Fleet, 19 were killed and 6 wounded. Major-General Sir P. Robertson, who also replied, said there was no branch of the army which more fully deserved honour than the R.A.M.C. The toast of "The Houses of Parliament"

[1] King Edward's Hospital Fund for London; Statistical Report on the Ordinary Expenditure of One Hundred and Nine Hospitals for the Year 1918. London: Spottiswoode, Ballantyne and Co., Ltd. Price 1s. net., 1s. 2d. post free.

[1] Ministry of Health Circular 23. To be purchased from any bookseller, or directly from H.M. Stationery Office. Price 1d.

was proposed by Sir Kennedy Dalziel and responded to by Captain W. Elliott, M.P., in an amusing speech. Sir Donald MacAlister, in proposing the health of "The Guests," said it was a happy thought of Dr. Kennedy Glen and his colleagues to bring them together that evening for the purpose of offering to their Glasgow brethren a welcome home from the war. He asked the hosts to pledge their honoured guests with a warmth that would leave no doubt as to their admiration and gratitude for what they had done. In no war before had medical science and skill done so much to reinforce the might of their Forces in the struggle to mitigate suffering, to avert death, to check pestilence, and to restore and maintain health. The medical service of our Forces, moreover, was to an unexampled extent a civilian service. It was in large measure carried out by general practitioners with no ambition for military glory and no previous experience of military methods. In conclusion, he claimed that the profession of medicine in Scotland, and in the West of Scotland in particular, deserved a double share of the admiring gratitude of the country at large. In support of this he read messages praising the work of Scottish doctors in the war, from Sir Alfred Keogh, Sir John Goodwin, and Mr. T. H. Graham, secretary of the Scottish Medical Service Emergency Committee. Mr. Graham's letter gave figures showing the splendid response of the Scottish medical profession. Colonel G. H. Edington, in his reply, paid a tribute to the Scottish branch of the Red Cross Society and the Territorial Force Association of the City of Glasgow. In all the theatres of war, he said, Glasgow was well represented by medical officers. A very successful evening came to a close with the toasts of "The Corporation of Glasgow" and "The Chairman."

General Medical Council Election.

We have received the following letter:

Sir,—In your issue of November 8th you give prominence to an address delivered in Glasgow by Dr. Norman Walker, in the course of which he took objection to a statement made by me at a recent meeting of the profession in Edinburgh. I said that the profession in Scotland had recently been put under the control of a Board of Health, and that the Act of Parliament establishing this had been rushed through without the medical profession being consulted. Dr. Norman Walker says that he read this statement with amazement. He then proceeded at great length to narrate the meetings of the Scottish Medical Advisory Committee and its findings in connexion with a previous Act—namely, the Ministry of Health Bill—from which the clauses referring to a Scottish Board were eliminated during its passage through Parliament.

The bill I was referring to when I made the statement which amazed Dr. Walker was the Scottish Board of Health Bill, introduced into the House of Commons on March 27th last. This was a recast of the Scottish Clauses of the Ministry of Health Bill in which the constitution and membership of the Board was much altered. In this new bill the recommendations of the Advisory Committee sitting on the preceding bill were not carried out in the clauses constituting the new Scottish Board of Health. The Scottish Advisory Medical Committee was never summoned to consider or to offer any opinion on the new clauses of this new bill during its passage through the House of Commons. No University Medical Corporation or Medical Association was asked for opinion or advice. As soon as copies of the bill could be obtained meetings of medical practitioners were summoned by the British Medical Association in Edinburgh and Leith, and by the Royal Faculty of Physicians and Surgeons of Glasgow, and at both meetings unanimous resolutions of dissatisfaction with the constitution and membership of the new Board of Health were passed. Dr. Norman Walker moved a resolution "that even if it involves an addition to the membership of the Board, there should be two members representing the clinical side of medicine."

Without paying the slightest attention to this adverse criticism and asking for no advice from the medical profession, the Scottish Secretary went on rushing the clauses of the bill through the House of Commons. The Subcommittee of the Scottish Medical Advisory Committee, which ought to have called a meeting of the Committee to advise upon these objectionable clauses, met on April 5th, and sent out a circular to the members desiring them to bring forward specific proposals for the amendment of the bill. They seemed to imagine that the Government would give them plenty of time to formulate their amendments. Meantime the Scottish Secretary was, in spite of the hostile criticism of the profession, pushing the bill as rapidly as possible through all its stages in the House of Commons. One week after the Royal Faculty of Physicians and Surgeons of Glasgow obtained a copy of the proposed Act they sent a deputation of their Fellows to London to represent their objections to the proposed clauses, but they were already too late. All the important clauses with reference to the powers and constitution of the Board were already passed by the Commons without time being given for adequate discussion. A deputation from the corporation of the City of Glasgow arrived at the House of Commons on April 9th to advocate the amendments they desired. They also were too late. Why this unseemly haste in such an important matter as the health interests of the nation?

A meeting of the Scottish Medical Advisory Committee was at length held on May 17th, a month after the bill had been passed through all its stages in the House of Commons. Dr. Norman Walker says that at that meeting he does not remember that any one raised the point that the representation of one-third of medical members on the Board had not been conceded. In seconding Dr. John Stevens's motion asking for the representation of general practitioners of the curative side of medicine on the Health Board, I pointed out that we had only secured in the bill a medical representation of one-fourth in a membership of eight, and that if we succeeded in getting a representative of curative medicine added it would make it up to one-third, which the Advisory Committee asked for but did not obtain. Dr. Norman Walker appears to desire to pose as a defender of the tactics of the Scottish Office and of the Government officials who constitute the present Board of Health, and at the same time as defender of the interests of the general practitioners whose votes are necessary to return him to the General Medical Council. I would respectfully suggest to him that whole-hearted loyalty to the profession and to the great health interests of the community is a better spirit than that of appearing to be hunting with the hounds and running with the hare.—I am, your obedient servant,

Glasgow, Nov. 9th. EBEN. DUNCAN.

Ireland.

General Medical Council Election.

We have received from Dr. Leonard Kidd a copy of his election address to the registered medical practitioners of Ireland, dated November 7th. Dr. Kidd seeks re-election on the ground that he is a provincial general practitioner, unconnected with any medical school or corporation. "From this independent standpoint I can consider, without prejudice, such proposals as may come before the Council with regard to examinations, course of study, and discipline." With regard to educational matters, he insists on the value to the General Medical Council of representatives of the rank and file of the profession who can from personal experience speak of the daily life of general practitioners and their requirements for efficient work. He is in favour of a "one portal" system of examinations for each division of the United Kingdom, such examinations to be subject to the inspection and control of the Council as to their sufficiency. He would like to see every medical student obliged to reside for six months in hospital after passing his final examinations, and before beginning private practice. With regard to discipline, Dr. Kidd insists on the need for the general practitioner to assist in the consideration of penal cases by the Council, "because it is he who suffers most from the evils of improper rivalry, and he, too, is most familiar with the temptations so common in the struggles of general practice." He supports an increase in the number of direct representatives, and the provision of direct representation for registered dentists. He stands also for the protection of the privileges and rights of registered practitioners by stringent measures against unqualified practice. Lastly, he is in entire sympathy with the grievances of members of the Poor Law and other medical services in Ireland, but recognizes that these matters are outside the functions of the General Medical Council.

Correspondence.

LOCAL CLINICAL LABORATORIES.

Sir,—The letter of "Clinical Pathologist" in your issue of October 18th must be answered. His roll of 2,000 medical men and 200 public health authorities proclaims the "commercial" laboratory and the non-applicability—ugly word, but a very useful army term—of the adjective of his signature. A "filled up" form can never replace personal contact at the bedside; the essential meaning of "clinical" seems to be lost.

He dilates upon the size of the laboratory "at a distance" and its facilities for apparatus. I suggested an army hut, 60 ft. by 20 ft., and its equipment from army medical stores, and I know that anything and everything that a bacteriologist and pathologist could want is stored in countless multiplication, and I have worked in much less space. My ideal laboratory with its area is certainly not parochial, and would serve some hundreds of thousands of possible patients, all within reach of the personal attendance of its director.

How does "Clinical Pathologist" do blood counts and blood cultures, examine cerebro-spinal fluid, contacts of cases of cerebro-spinal fever, etc., all demanding the personal attendance of the bacteriologist, with his accompaniment of counting apparatus, diluting fluids, fluid and solid culture media, hot water-jacketed containers, and so on?

A few illustrations may show what I mean. I have often received the following specimens from distant medical officers who ought to know better:

Two slides hopelessly stuck together with a blob of blood between for differential count or parasites.

A quarter-inch clot of blood in a capillary tube for a Widal, for T.A.B.

A small clot of blood in a test tube (twenty-four hours in the post) for a blood culture.

It is rather pitiful; the spirit is willing but the technique is lacking. A very clever book has for its introduction a German sentence meaning "technique is everything"; well, it isn't, but like "a little British Army," it "goes a d—d long way!"

The country practitioners I instanced in my letter published in your Journal of August 30th know better than "Clinical Pathologist." One of them recently motored many miles to me with a cerebro-spinal fluid in a sterile bottle snuggled in cotton-wool close to his skin under his waistcoat. That is the spirit I am out to inspire. I would have gone to him and saved him the trouble if he had asked me to.

It is asked, "How many local laboratories would be able to support a chemical pathologist, bacteriologist, and histologist?" Histologist as such is a new term to me; a pathologist knowing nothing of histology is an impossible conception; a surgeon knowing nothing of anatomy would be his fit partner! A bacteriologist knowing nothing of the chemical side of his work is in like condition!

The director of my ideal laboratory would be a man who combines in himself the knowledge and experience these wordy distinctions seek to separate, together with real clinical knowledge, otherwise he would not be the right man for the job.

"Over the teacups, with tired eyes, and a cigarette," I should be delighted to discuss the standpoint with "Clinical Pathologist." In my experience it is usually my fingers that are tired!

My letter dated August 18th, and published in your issue of August 30th, requires the same signature.—I am, etc.,

October 21st. Bacteriologist.

CREMATION AND MEDICAL FEES.

Sir,—Desiring, as I earnestly do, to see cremation more generally practised, I welcome Mr. H. T. Herring's letter in your issue of October 25th, raising the question of the amount of the fee that should be charged for giving certificates in Forms B and C respectively.

Inquiry is frequently made to cremation authorities as to what fee should be paid for giving these certificates, and it seems to me that if the profession fell in with Mr. Herring's proposal generally it would be satisfactory all round. The party seeking cremation would know exactly what he would have to pay when he applied to any particular doctor, and the doctors themselves would be saved from the inevitable consequence where the public get to think that some are charging fees out of proportion to the service rendered.

In the case of deaths in the hospitals, infirmaries, and similar institutions a lower scale should be charged as, in the case of Form C in particular, the necessary inquiries are more easily and quickly made than in the outside cases.

Complaints also reach us that doctors sometimes give a certificate in Form C, and charge for it without being qualified under the Cremation Act, as when he is not of five years' standing. A careful reading of the certificate would avoid this.

If cremation is an improved method of disposal of the dead—and few would deny that it is—it would be against the public interest that its cost should be raised by excessive medical fees. The usual charge for cremation is about five guineas. If, as in a recent case, as much as four guineas is asked for signing Form C, the cost would be prohibitive in many cases. It should be borne in mind that no fee at all is paid to the doctor for the ordinary death certificate in a case of burial.—I am, etc.,

Charles Cameron, M.D.,
President, Cremation Society of England.

324, Regent St., W.1, Nov. 7th.

RADIUM TREATMENT IN IRELAND.

Sir,—There appeared in the *Irish Times* of October 30th a full column appealing for funds entitled, "St. Bartholomew's call to Ireland." The following statement which I extract is misleading, unintentionally I feel confident, and I think not just to the Dublin hospitals, which are also badly hit by the war:

You in Ireland may regard it as an invasion for this hospital in London to appeal to you, but St. Bartholomew's does not regard it as strange when people travel from Ireland to Bartholomew's. For instance, a man was sent by his doctor in Ireland to St. Bartholomew's; his fingers were contracted, stiffened, and as useless as wooden pegs. Radium treatment at Bartholomew's (not available in Ireland) restored the full use of his hand.

I first used radium in Dr. Steevens's Hospital in 1904, and published in the British Medical Journal of July 4th, 1914, I believe the first recorded case of treatment by radium of fingers which were contracted, stiffened, and even more useless than wooden pegs, as they kept the patient awake with pain at night. The treatment was most successful. I saw the patient, after five years, a few days ago.

We are fortunate in Ireland to be able to obtain from the Royal Dublin Society Radium Institute radium emanation for the treatment of patients in hospitals and elsewhere. I may add that the radium treatment of stiff hands due to war injuries has been authorized by the War Office on account of my work at Dr. Steevens's Hospital, and at Blackrock, Alder Hey and Shepherd's Bush Special Military Surgical Hospitals (vide *Lancet*, March 23rd, 1918, *Medical Press and Circular*, January 8th, 1919, *Archives of Radiology and Electrotherapy*, April, 1919). In addition to some 250 hospital cases treated for malignant disease at Dr. Steevens's Hospital, I have treated, with eminently satisfactory results, 453 patients for war injuries (stiff joints, adherent and painful scars, etc.), 349 of them in Ireland. Incidentally, it appears to me obvious from the result obtained at St. Bartholomew's, and my own experience, that radium should be much more extensively employed for the benefit of those wounded in the war than it has been heretofore.

I feel that these facts have only to be pointed out to the authorities of St. Bartholomew's to obtain justice for our Irish hospitals.—I am, etc.,

Dublin, Nov. 3rd. Walter C. Stevenson.

CHILD WELFARE AND OPERATIONS FOR TONSILS AND ADENOIDS.

Sir,—I beg for the hospitality of your columns to endorse in the strongest way possible the letter of Mr Douglas Drew (November 1st, p. 577). As one whose duty it is to perform a large number of these operations, I should like to say that I entirely agree with the opinion he gives that it is quite improper to regard them as

trivial. Mr. Drew points out the risks from haemorrhage, both immediate and secondary, and also from septic complications, as well as those of anaesthesia.

While I believe that the method of removing tonsils I published recently[1] lessens greatly the risk from haemorrhage, both immediate and secondary, it is nevertheless true that risks remain; and when patients say to me, as they frequently do, that they presume the operation is free from danger, I always decline to accept this view, and always say that the operation cannot be considered devoid of risk.

What I specially wish to do, however, is to dot the i's and cross the t's of the later half of Mr. Drew's letter. I agree with him that the conditions under which the great bulk of these operations are performed are highly undesirable, and I include the bulk of those I do myself.

I also have no doubt as to the answer to the question he puts:

> Would any surgeon have his own child operated on in the manner described and sent home (to the homes the children mostly come from), or would any surgeon do the operation for a private patient under similar circumstances unless compelled?

The last two words of this question of Mr. Drew's give the reason why I myself perform a great number of tonsil and adenoid operations under conditions which I am perfectly aware are unsatisfactory. The choice open to me and to all hospital surgeons is to do these operations under the present unsatisfactory conditions, or not to do them at all; and the gain to health and life is, I believe, greater on the side of doing than not doing them, even under present conditions. This, however, is no reason for allowing the unsatisfactory conditions to persist. The local health authority has powers to make provision both for the performance of this class of operation and for suitable places for convalescence after them.

It is time that the local authorities woke up to their responsibilities in this and cognate matters, and it is time that the medical profession took its share in arousing them. Had Mr. Lloyd George properly consulted the medical profession when he insisted on interfering, without knowledge, in the practice of medicine in this country (and to consult the medical profession properly, he ought to have consulted the general medical practitioner), he would have learnt that what was chiefly needed was state aid for hospital practice, and that change in method of general practice might safely wait. Mr. Lloyd George chose the opposite course to the highly doubtful advantage of medicine. Had he been wisely advised, such comparative barbarities as the present conditions under which these operations are usually performed would now have been on their way to disappear. As it is, I would like to say how glad I was to read Mr. Drew's letter, and I hope he will send a copy of it to every mayor, and to the chairman of every health committee in the kingdom.—I am, etc.,

PETER MACDONALD,
Honorary Surgeon, Ear, Nose, and Throat Department, County Hospital, York.

York, Nov. 3rd.

HYPERNEPHROMA OF THE OVARY.

SIR,—In reply to Dr. H. Leith Murray, may I say that it did not occur to me that the individual lutein cell might be mistaken for that of an adrenal rest. The latter is much longer, oblong in shape, and shows a tendency to branching at each end.

As regards the arrangement of the cells, I am familiar with small masses of lutein cells in the stroma of the ovary itself and in the wall of theca-lutein cysts, but as far as I am aware both these always show some remains of the Graafian follicle from which they are necessarily derived. In both my cases there was a definite tumour projecting into the peritoneal cavity, homogeneous in structure and quite separate from the normal ovarian stroma.—I am, etc.,

A. KNYVETT GORDON.

London, W.C., Nov. 10th.

MEDICAL APPOINTMENTS UNDER THE MINISTRY OF PENSIONS.

SIR,—I quite agree with the letter of "Z." in your issue of September 28th. I believe many Deputy Commissioners of Medical Services are extremely dissatisfied with the present conditions of office. The clinical side of the work is strangled by red tape and the miasma of War Office methods seems to pervade everything.

Responsibility is pushed on to the D.C.M.S., but on the administration of the work he is seldom consulted. His position savours of that of a junior subaltern, instead of a professional equal of those who have comfortable appointments at head quarters. The salary of £700 a year is quite inadequate these days, especially when it is remembered that there is no security of tenure, one month's notice on either side being the existing regulation. No sensible man can take up a permanent residence on these terms. Consequently his domestic life is often uncomfortable and additionally expensive. Present conditions, whatever the Minister of Pensions may say, do not attract "men of standing and capacity." When the service commenced much was hoped for and expected, and many men of the highest ability entered the service. I scarcely think they are doing so now.

I believe many Deputy Commissioners of Medical Services are unsettled and perturbed, and unless the Ministry of Pensions bestirs itself on their behalf by making the appointment secure and decently paid, at the same time recognizing that they are "men of ability and standing," they will find that in future it will be extremely difficult to fill vacancies without the service suffering.—I am, etc.,

ALPHA.

November 6th.

THE CAPITATION FEE.

SIR,—There is no subject of such vital interest to 14,000 members of the profession at the present moment as the question, What shall be the remuneration for attending the panel patients during the next three years? Quite apart from the increased cost of living, the capitation fee never was adequate. But now that the wages of his patients have increased from 200 to 300 per cent., counting overtime, the average doctor has to work longer and longer hours and deny himself most of the pleasures which the manual workers enjoy, and even then has difficulty in making ends meet.

From many correspondents in the BRITISH MEDICAL JOURNAL one gathers that 7s. a year works out at 1s. 3d. for consultations at the doctor's house and 2s. 3d. for visits. This latter is less than the cost of a cab there and back. From the day I took this practice over I have always treated the panel patients the same as the private ones; indeed, it is difficult to do otherwise, as the latter are nearly always the relatives of the former. I have everything in my consulting room for making an accurate diagnosis—sphygmomanometer, ophthalmoscope, laryngoscope, urinalysis, and blood-testing apparatus; but they all have the great drawback of taking time. How much time can one afford to give for 1s. 3d.? If there are no record cards to be looked for and statistics entered up one can give more than if this purely clerical work has to be done. A little time must also be allowed out of the 1s. 3d. for writing out the certificate and prescriptions, of which three copies must be made. Many of my panel patients have paid another doctor £3 3s. for a thorough examination, and have asked me many times how a good doctor can do the same thing for 1s. 3d. The answer, of course, is that he cannot. But, as far as my patients are concerned, I can truly say that there is not one of them who has not had many times more for his money than he paid for.

From the patients' point of view the panel is a splendid thing, because without it they would have to wait for many hours in the out-patient department of a hospital and be attended at last by the junior member of the staff in many cases. While at their panel doctors' they have a comfortable, warm, and lighted room to wait in with plenty of books and magazines, and they seldom have to wait more than a few minutes. It is to the interest of the panel doctor to receive them kindly and not only to cure them of their present condition but advise them how to avoid a similar attack in the future. An experienced doctor can give much useful advice to a man with tachycardia or D.A.H. who smokes four hundred cigarettes a week, and it only takes a minute to do it in addition to the examination.

Many panel patients have told me they would be only too glad to double their contributions for the doctor's payment. They all realize that 336 farthings a year, which

[1] BRITISH MEDICAL JOURNAL, October 4th, 1919, p. 437.

is the seven shillings now paid, is not sufficient. I believe that they would all be willing to put on an extra twopenny stamp for this purpose, which would only amount to less than a farthing a day. This would give the doctors fourteen shillings a year a head. At this rate we would be willing to take all the soldiers, and children at 14 instead of 16 years as the coming on age; and we could give just twice the attention we can now afford, and also take a pride in our work. From the doctor's point of view also the panel would become a good thing, because, although the fee would still be small—two shillings and sixpence—it would be paid at regular stated periods without the uncertainty of collecting and the trouble of sending out bills. Let us hope that the panel doctor will thus find a happy issue out of all his trials.—I am, etc.,

M.D.

November 5th.

*** Other correspondence on the remuneration of insurance practice is printed in the SUPPLEMENT.

POST-GRADUATE SCHOOLS IN LONDON.

SIR,—In his address entitled "Some Remarks on Medical Education," published in your issue of November 8th, and referring to the provision in London of post-graduate instruction, Sir George Makins alludes to the work attempted in this direction by the West London and the Seamen's Hospitals, mentioning the circumstance that the teaching in these institutions has been exclusively devoted to medical practitioners.

He, however, did not mention another institution which has done similar work during the last seventeen years—the North-East London Post-Graduate College, attached to the Prince of Wales's General Hospital. Its teaching staff, fearing that this oversight might lead to some misapprehension as to its present position, requested me to write to Sir George Makins pointing out the omission, and he has been kind enough to reply, expressing his regret that he did not mention our school at the meeting in Manchester.

It is true that since the beginning of the war formal lectures and special classes have been largely in abeyance, as at the other post-graduate schools, but clinical teaching has been continuously carried on, and, although no set syllabus will be issued before Christmas, it is intended that the full activities of the school shall be resumed early in January next, and that they shall, so far as possible, be made to fit in with the larger scheme of post-graduate education now being developed.—I am, etc.,

ARTHUR J. WHITING,
Dean, North-East London Post-Graduate College.

November 10th.

The Services.

INDIAN MEDICAL SERVICE.

REFERENCE is made elsewhere (p. 643) to the White Paper (Cmd. 398) containing further correspondence regarding the medical arrangements and comforts for the troops on the North-West Frontier. In an introductory note the Secretary of State for India deals seriatim with the recommendations of the Mesopotamian Commission and with the criticism that the lessons of the Mesopotamian operations in regard to medical administration had been neglected by the Government of India. He gives a summary of the action taken on the recommendations of the Mesopotamian Commission:

(*a*) As to the recommendation of the Commission that the D.M.S. India should have far greater powers to authorize expenditure, medical purchases, and delegate such power to his subordinates, it is stated that the sanction of the Government could be obtained within a few hours, and that general officers commanding divisions, divisional areas, and independent brigades possessed the power before the Commission reported to sanction expenditure up to a limit of Rs.25,000 in each case on hospital and convalescent accommodation, furniture, clothing, and medical and other stores required for sick and wounded men returning from field service to India.

(*b*) The recommendation that improvements should be made in the standard of comfort and accommodation in the hospitals for British troops in India had been met by providing electrical installations, by the extended provision of operating rooms, recreation rooms, facilities for *x*-ray and laboratory work, and superior hospital equipment generally. The position had been examined by a committee under the presidency of Sir George Makins, which made recommendations with a view to bringing station hospitals up to the level of war hospitals and of civil hospitals in India. The Government of India has accepted the principles, and effect is being given to them so far as funds and other circumstances permit.

(*c*) The principle of the substitution of station hospitals for Indian troops for the regimental system has been accepted, and station hospitals have been instituted on a provisional basis, the most suitable of the regimental hospitals being adapted for this purpose; the remainder are used as ancillary section hospitals. Improved scales of accommodation and diet, the latter being now free to both troops and followers when in hospital, have been issued, the aim being to bring the Indian hospitals as nearly as possible up to the same standard as the hospitals for British troops. The India Office has under consideration a scheme for the formation of an Indian Hospital Corps, which would be an essential feature of the station hospital scheme in its complete form. The Government of India appointed a travelling committee to inspect some of the station hospitals, both British and Indian, and to prepare plans for extensive structural improvements; but for the time being action is suspended, as other measures were held to have the first claim on such funds as were available.

(*d*) As to the recommendation that the mobilization equipment of general hospitals should be stored, kept in readiness, and inspected, it is stated that twenty-one general hospitals were available on mobilization for the frontier operations in May, and that fifteen were mobilized and opened in time to meet the requirements of troops as they were evacuated.

(*e*) A scheme for the reintroduction of base dépôts of medical stores has been sanctioned.

(*f*) The Commission recommended that a separate superior sanitary organization and staff, responsible to the P.M.O. of the force, but otherwise independent of organization for the care of sick and wounded, should be formed. On this head it is stated that the divisional head quarters of all forces include sanitary officers who form the staff responsible to the D.M.S. or A.D.M.S., and that during recent operations additional sanitary officers were appointed to the lines of communication and areas. During the war motor ambulance convoys were organized and the hospital train service considerably expanded.

(*g*) The field service ration, as the Commission advised, had received very careful consideration. The Commander-in-Chief in India was of opinion that while quality, especially in regard to meat, was not up to the home standard, which could not be expected in India, yet it compared favourably with the average standard procurable in that country. The peace ration of British troops in India was larger and more varied than the sanctioned scale at home. At the request of the Government of India two expert officers are being sent out by the War Office with a view to improving the methods of preparing the ration.

With regard to the Indian Medical Service the Secretary of State makes the following observations:

Medical arrangements for the Indian army (as distinguished from British troops on the Indian establishment) are in the hands of the Indian Medical Service. Representations were made to the Mesopotamian Commission and elsewhere before and during the war that grave discontent existed throughout the service as to the conditions and prospects. It will not be out of place to enumerate the steps taken to meet grievances and to improve conditions.

1. The rates of staff pay in the field were improved. A scheme of accelerated and acting promotion was introduced on the lines of that in force for the R.A.M.C., and promotions were made in the place of officers who had to be retained beyond the normal limit. Two temporary surgeons-general were appointed to meet the special needs of the war, and eight additional military administrative appointments were created for the period of the war, carrying the rank of colonel.

2. The adoption of the system of station hospitals for Indian troops is of considerable advantage from the professional point of view to officers of the Indian Medical Service, as it involves a more satisfactory employment of specialist officers and enables an individual officer by his attachment to a hospital, where patients from several, and in some cases many, units are concentrated, to do his work under more satisfactory conditions and provides him with facilities for studying subjects in which he is specially interested.

3. An increased scale of pay has been approved for the whole service, both on its military and civil sides. The principle of the increase is 33⅓ per cent. on the old rates of military pay of grade. The rates of pay for home leave have also been improved.

4. Reversion from military to civil employment was proceeding as rapidly as possible before it was interrupted by the Afghan war.

5. Another subject of discontent has been the restriction on leave to the United Kingdom, whether for health, for study, or for ordinary purposes. This cannot be fully remedied while the need for medical officers on the military side continues as urgent as it is at present, or until the cadre of the service can be replenished. Steps are being taken in two directions:

(1) Temporary officers already in the service are being retained and more temporary officers are being appointed. The supply of temporary officers has always been restricted by the requirements of the R.A.M.C. throughout the war and by the comparative smallness of the medical profession in India.

(2) The recruitment of permanent officers for the I.M.S. on a large scale was not possible during the war. But the Government of India have recently completed their estimate of their requirements, and steps have been taken to announce the conditions of appointment and arrange for selecting candidates. A special inducement is offered in the shape of a retiring gratuity of £1,200 after eight years' service.

6. The right of the administrative heads of the Service to direct official access to the Viceroy and to the heads of provincial governments has been conceded, and arrangements are being made to give effect to this.

7. The whole field of medical administration in India, both civil and military, and including under the latter heading the medical arrangements for British troops in India, has been explored during last winter by a committee appointed by the Government of India. This committee has presented a report which makes recommendations of a far-reaching nature. The consideration of this report by the Government of India was unavoidably delayed by their pre-occupation with the Afghan war, but the Government of India are now engaged in considering the matter.

AN Army Order recently published states that the King has approved of the following Corps of the Dominions and Union of South Africa being shown in the *Army List* as allied to the Royal Army Medical Corps:

The Army Medical Corps of the Dominion of Canada.
The Army Medical Corps of the Commonwealth of Australia.
The Medical Corps of the Dominion of New Zealand.
The Medical Corps of the Union of South Africa.

HONOURS.

D.S.O.

Surgeon Lieutenant Alan Andreas Cockayne, R.N., has been appointed a Companion of the Distinguished Service Order "for distinguished services under fire as medical officer of the *Zoraster*, *Venture*, and *Emile Nobel* in action off Fort Alexandrovsk on May 21st, 1919."

D.S.C.

Surgeon Lieutenant Walter Francis Raphael Castle, R.N., has been awarded the Distinguished Service Cross "for distinguished services during the action off Onega on October 1st, 1919, in attending to the wounded under heavy enemy fire."

Surgeon Lieutenant Commander George Gordon Vickery, O.B.E., R.N., has been mentioned in dispatches.

Obituary.

WE regret to record the death of Dr. THOMAS GRAHAM MATHEWS, of Kirkby Lonsdale, which occurred on October 20th, at the age of 50 years. By this sad event the profession has lost one of its truest representatives, and the public one of its best friends and most trusted advisers. The son of Canon Mathews, formerly of Carlisle and now a vicar in Cornwall, he early showed an interest in natural science, and this led him to adopt medicine as his profession. He was educated at Appleby Grammar School and afterwards at Edinburgh University, where he took the degree of M.B. and C.M. in 1891, and M.D. in 1896. As house-surgeon at the Cumberland Infirmary his genial personality and devotion to duty won for him a high place in the esteem of the staff and also of his co-workers. After some years in general practice in Derbyshire he migrated north, and succeeded Dr. Jackson of Whitehaven. Here he remained for a few years, but the call of the country was too strong, and in 1904 he removed to Kirkby Lonsdale, taking over the practice of Dr. Wyllie, and in the following year that of Dr. Ledgard. Here he quickly gained the esteem of a large circle of friends, and the skill and assiduity with which he carried out his duties over a wide district caused him to be admired and highly respected by his patients. He held several public appointments, being a Poor Law medical officer, public vaccinator, medical officer of health, medical assessor under the Workmen's Compensation Act, and a member of the War Pensions Medical Board. He worked in perfect harmony with his fellow practitioners, and was loved, trusted, and respected by all. The highest type of what a general practitioner should be, duty to his neighbour meant for him a constant readiness to help any or all and to give them of his best. It meant, even in the midst of a busy practice, keeping himself thoroughly abreast of the times and fully conversant with recent researches, as his library vividly testifies. A good sportsman and naturalist, a keen archaeologist, well read in literature, taking a keen interest in the social welfare of his neighbours, having a fine sense of humour, and having the gift of remembering funny stories, Dr. Mathews was naturally the best of friends and companions. Latterly, although threatened by a breakdown in health, he refused to acknowledge any disability and went about his work as usual. He was at church on St. Luke's Day and also on the following Sunday evening, and soon after the commencement of the service he had an apoplectic seizure which proved fatal in seven hours. He was laid to rest at Hutton Roof, a short distance from Kirkby Lonsdale, in the heart of the beautiful country he loved so well, and among the people whose affection and respect he had so justly earned. He leaves a widow, two sons, one of whom has just entered as a medical student at Oxford, and one daughter, with whom the deepest sympathy is felt at their sudden bereavement.

WE regret to announce the death, at the early age of 32, of DONALD MCCULLY, M.R.C.S., L.R.C.P., which took place at Mafeking, South Africa, on September 13th. He was educated at St. Paul's School and at University College and Hospital, where he won the Liston Gold Medal for Clinical Surgery. After qualifying in 1909 he held the resident appointments of obstetric assistant and house-physician at University College Hospital, followed by that of casualty surgical officer at the same institution. Early in 1912 he went to Mafeking to join in partnership with his uncle, Dr. T. W. P. Hayes. In Mafeking he held the appointments of district surgeon, railway medical officer, M.O.H., etc., and, in addition, after a year on the town council, he was, in 1916, elected mayor of Mafeking, a post he held for two years, while still under thirty years of age. Soon after his arrival there his uncle retired from practice, and the outbreak of war found McCully carrying on his practice and appointments single-handed. As soon as he could manage to find a partner he joined up in the S.A.M.C., and went through a considerable part of the campaign in German East Africa, remaining there till its successful conclusion. His death from malignant scarlet fever, contracted from a child patient, caused a remarkable demonstration of sorrow in Mafeking, an eloquent testimony to the affection he had succeeded in inspiring in all with whom he came into contact. He leaves a widow, who had landed in England on a visit only a few days before he was taken ill; he had hoped to join her in this country a little later for the first visit to his relatives and friends since 1912, but Fate decreed otherwise, and he rests in Mafeking—a victim of duty well performed.

WE regret to announce the death of JAMES VALER ALBERT, who passed away after an acute illness on November 4th, having been in indifferent health for some years. He was born in 1848, and was educated at the City of London School and St. George's Hospital. He took the L.D.S.R.C.S.I. in 1878, and the M.R.C.S.Eng., L.R.C.P. Lond. in 1890. His death will be greatly felt by a very large number of friends; he was well known to many generations of St. George's students, where he often assisted his brother in the dental department. He had a striking personality, and his dexterity and rapidity in extracting teeth were the admiration and envy of all who saw him. He was most conscientious in his work, and had numerous activities outside the profession. He was much interested in the apprenticeship of working boys to skilled handicrafts, and spent much of his spare time in this work of national importance; without doubt his advice kept many a boy from drifting into blind-alley occupation.

LIEUT.-COLONEL FRANCIS ARTHUR DAVY, R.A.M.C. (retired), died at Richmond, Surrey, on October 18th, aged 73. He was the third son of the late William Davy of Clareville, Galway. He was born on February 17th, 1846, and educated at Queen's College, Galway. After graduating M.D. in the Queen's University of Ireland in 1867 and taking the L.F.P.S.G. in 1868, he entered the army as assistant surgeon on October 1st, 1868, became surgeon on March 1st, 1873, and surgeon-major on October 1st, 1880, retiring on October 10th, 1888. After his retirement he was employed for some time at Sheffield. He served in the Afghan war of 1878–80, receiving the medal

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on October 30th the degree of doctor of medicine was conferred on C. P. Symonds.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on November 9th the following medical degrees were conferred:

M.D.—W. G. Parkinson. M.B.—G. D. Sherwood.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on October 22nd. It was reported that the Vice-Chancellor had appointed Dr. W. G. Savage and Dr. W. L. H. Duckworth to the external examinership in forensic medicine and anatomy respectively.

Dr. Amand Routh has been appointed a representative on the County Secondary School, Bermondsey.

An additional second examination for medical degrees, Part II, will begin on December 2nd.

ST. THOMAS'S HOSPITAL.

The University Entrance Scholarship for 1919–20 (£50) has been awarded to G. D. C. Tracey of Emmanuel College, Cambridge.

UNIVERSITY OF GLASGOW.

THE following degrees were conferred on November 8th:

M.D.—*George Macleod, †H. Graeme Anderson, †George Fletcher, H. M. Calder, C. Lundie, D. M'Intyre, A. B. MacLean, N. A. Macleod, S. J. Moore, B. H. Robertson, A. C. Sharp.

* With high commendation. † With commendation.

Medical News.

THE old students' dinner of the London Hospital Medical College, postponed on account of the railway strike, has now been cancelled.

A PRESENTATION, consisting of an illuminated address and a sum of money, was recently made to Dr. and Mrs. John Halliwell by the residents in and near Winchcombe, Gloucestershire. Dr. Halliwell, who has practised at Winchcombe for nearly thirty years, has retired owing to ill health, aggravated by his exertions at the local Red Cross hospitals during the war.

THE next session of the General Council of Medical Education and Registration will commence at 2 p.m. on Tuesday, November 25th, when the President, Sir Donald MacAlister, K.C.B., M.D., will take the chair and give an address. The Council will continue to sit from day to day until the termination of its business. The session, we understand, is likely to be unusually short.

AN order in Council has been laid before Parliament transferring to the Ministry of Health duties of the Home Office with regard to the Anatomy Act. The duties transferred include the appointment of inspectors and the regulation of their duties.

THE medical men of Southend-on-Sea and district entertained at dinner on October 21st those of their colleagues who had served with His Majesty's forces during the late war. Over thirty sat down to dinner, and a thoroughly enjoyable evening was spent under the chairmanship of Dr. Cleveland Smith.

THE Aberdeen University Club, London, will hold its sixty-second half-yearly dinner at the Criterion Restaurant, Piccadilly Circus, London, W.1, on Thursday next, November 20th, at 7.30 p.m., when Professor Ashley Watson Mackintosh, M.D., will be in the chair. The annual general meeting will be held at 6.30. The secretaries will be glad to hear of any new members or of changes of address; communications should be addressed to Dr. W. A. Milligan, 11, Upper Brook Street, W.

INFLUENZA has again broken out in epidemic form in Spain. There is a rather severe outbreak in the Argentine Republic also.

AN announcement by the Ministry of Pensions in our advertisement columns states that the appointments of medical referees in the London region will be filled in December. Applications from boroughs north of the Thames must be received by November 30th, and from those south of the Thames by December 10th. Another announcement is to the effect that the Ministry can still give part-time employment to medical men on medical boards in some towns of Lancashire and Cheshire, especially Manchester; applications should be addressed to Dr. A. H. Williams, Commissioner of Medical Services, Ministry of Pensions, 13, Piccadilly, Manchester.

A POST-GRADUATE course will be held at the Victoria Hospital for Children, Tite Street, Chelsea, each week-day from Monday, November 24th, till Friday, December 5th, inclusive. The fee for the course is £1 1s., except for those taking the course in connexion with the Fellowship of Medicine.

SO far as we have been able to ascertain the following is a complete list of the medical men who were elected mayors in England and Wales on November 9th: Kensington, Dr. A. J. Rice-Oxley; Droitwich, Dr. P. A. Roden; Faversham, Dr. S. R. Alexander (tenth term of office); Stafford, Dr. F. M. Blumer; Tunbridge Wells, Dr. H. A. Latimer.

AT a meeting of the Royal Meteorological Society, to be held at 70, Victoria Street, S.W.1, on Wednesday, November 19th, Lieutenant C. W. B. Normand will read a paper on the effects of high temperature, humidity, and wind on the human body. The upper limits of livable climatic conditions for the average healthy man, with special reference to desert and tropical conditions, will be considered.

THE Women's Branch of the Training Department of the Ministry of Labour has been authorized to arrange for the training of disabled nurses in accordance with the terms of the Royal Warrant. Persons eligible are nurses in receipt of a pension under that Warrant who, owing to disability incurred on military service, are prevented from following their former occupation. Letters of inquiry, marked "Disabled Nurse," should be addressed to the Controller, Women's Training Branch, Ministry of Labour, St. Ermin's Hotel, Westminster, S.W.1.

THE eighth Congress of the National Union of Students of France will be held at Strasbourg on November 22nd, on the occasion of the anniversary of the entry of the French troops into Alsace in 1918. On the same date Strasbourg will celebrate, in the presence of a large assembly of professors and students from all parts of France and other countries, the inauguration of the university, once more become French.

THE business of the Cambridge Scientific Instrument Company has been amalgamated with that of Mr. Robert W. Paul of New Southgate, and will in future be conducted under the name of "The Cambridge and Paul Instrument Company, Ltd." The head offices and showrooms will shortly be transferred to London.

THE Geological Survey of Great Britain and Museum of Practical Geology, Jermyn Street, S.W., have been transferred for administrative purposes from the Board of Education to the Department of Scientific and Industrial Research as from November 1st, but correspondence with reference to the work of the Survey should be addressed as heretofore to the Director of the Survey and Museum, Jermyn Street, S.W.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediaecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES AND ANSWERS.

INCOME TAX.

"F. C. P." has increased his fractional share in the profits of the practice in which he is a partner. How does this affect his liability?

*** The Income Tax Act, 1918, Section 20, provides *inter alia* that the income of a partner from a partnership shall be deemed to be the share to which he is entitled, during the year, in the partnership profits "such profits being estimated according to the several rules and directions of this Act." "F. C. P.'s" share was increased from ⅓ to ½ as from January 1st, 1920, and taking the average partnership profits as assessable at, say, £4,800, his income tax liability as a partner would be (⅓ of ½ plus ½ of ½) of £4,800=£1,300. It is

necessary to remember that the quantum of the assessment is determined by the average profits, what "F. C. P." does not pay on must fall to the share of some other partner. The fact that he may not receive the additional money during the financial year is immaterial.

"I.M.S." has paid income tax on income from *American* shares although he has been resident in India during the past nine years.

*** He should write to the Repayments Branch, Australia House, London, W.C.2, for a form, for the purpose of a claim for the three past years to be made by himself as a foreign resident in respect of tax deducted in this country on *foreign* share interest. The form contains instructions as to the declarations and documents required in support of the claim.

"B. J. W." paid tax for the year ending April 5th, 1917, on an amount which, as he is now prepared to prove, was in excess of his earnings for that year. Has he now any legal claim to repayment? The practice was taken over by him in October, 1915.

*** No. Although claims for "abatements" and other allowances may be made at any time within three years, a claim for a reduction of the quantum of an assessment must be made within twelve months from the end of the financial year in question, even in those cases to which the twenty-one days limited by the notice of asseessment does not apply.

LETTERS, NOTES, ETC.

INCOME TAX OF CIVILIAN DOCTORS ON WAR WORK.

A REFERENCE to this subject appeared in our issues of September 20th and October 11th of this year, and as the matter may be one in which many of our readers are interested, we again return to it in order to refer to two cases which were decided in the King's Bench Division on June 19th last. Both cases raised the question whether in the particular circumstances of each case an assessment had properly been made in respect of a person entitled to the special relief given by Sec. 30 of the Finance Act, 1916.

Section 30 of that Act, which is re-enacted by Section 42 of the Income Tax Act, 1918, provides that where "any person who, during the current income tax year, has served or is serving as a member of any of the naval or military forces of the Crown, or in service of a naval or military character in connexion with the present war for which payment is made out of money provided by Parliament, or in any work abroad of the British Red Cross Society or the St. John Ambulance Association, or any other body with similar objects, proves that he is assessed or charged to income tax, or has paid income tax either by way of deduction or otherwise on his pay in connexion with any such service, he shall be entitled to claim such relief from income tax as will reduce the amount of income tax on that pay to the amount which would have been payable if the tax were charged on the pay at the rate of—

9d.,	if his total income from all sources does not exceed	£300
1s. 3d.,	" " " " "	£500
1s. 9d.,	" " " " "	£1,000
2s. 3d.,	" " " " "	£1,500
2s. 9d.,	" " " " "	£2,000
3s. 3d.,	" " " " "	£2,500
3s. 6d.,	if his total income exceeds	£2,500"

and, further, that "where the total income of the claimant does not exceed £160 he shall be entitled to [total] exemption, and where the total income, although exceeding £160 does not exceed £300, he shall be entitled to relief from tax by way of abatement upon £160 instead of upon £120."

The cases to which we refer are Stockham *v.* Simpson and Curtis *v.* Holdsworth, and it is unfortunate that neither case has been reported. The claimant in the first case, however, had been secretary to a territorial association, and in the second the claimant was an acting paymaster. Both claimants had received pay out of money provided by Parliament, and in both cases Mr. Justice Rowlatt held that they came within the section quoted above as persons "in service of a naval or military character." It may be that in spite of our inability to give the reasons for the judge's decisions in these two cases, members of the profession will find the above of use to them if this question arises.

KNOWLEDGE AND INTUITION.

"EYE SURGEON" writes: I was one of the company that gathered at St. James's Vestry Hall at the invitation of the Metropolitan Counties Branch to hear Messrs. Bolam, Macdonald, Turner, and Verrall, candidates for election to the General Medical Council. The meeting was of much interest. I learnt what four men who knew things had to say of the General Medical Council; and also what many of us (before attending the meeting) had thought the General Medical Council was. But I am not writing to tell you this, but of an incident of my getting to that hall. I made for the old church of St. James, thinking it must be close there. But I could not find the hall. Three local shop workers knew it not, and the fourth gave directions that were proved wrong. I routed out the church verger, or his domestic; she knew nothing, and, to judge by the way she shut the door, cared less. In despair I asked a blind man, who stands like Bartimeus by the wayside. His answer was terse: "Three paces along this wall to the left is a fountain, beyond that some iron railings, where the railing ends the hall begins." His answer seemed to point a moral applicable to the General Medical Council election. Knowledge is better than intuition. But if both be combined, how excellent!

MOTORISTS' LIGHTING REGULATIONS.

THE many inquiries received by the Automobile Association regarding the lighting regulations indicate that numerous motorists are still in doubt as to the present requirements of the law. This is doubtless due to the revocation of the war-time restrictions, and the subsequent reimposition of certain of those restrictions during the strike period. The present position is summarized in a circular as follows:

> *Motor Cars:* (*a*) Two front lamps showing a white light in the direction in which the vehicle is travelling, one lamp placed on the *extreme* near side and the other placed on the *extreme* off side. (*b*) A lamp *at the rear* placed on the off side of the car, and showing a red light in the reverse direction to that in which the vehicle is travelling. This lamp should also illuminate the rear number plate.
>
> *Motor Cycles with Side-cars:* Similar requirements to the above, except that it is not necessary to illuminate the rear number plate if the front plate has duplicate faces and is illuminated by the front lamp of the motor cycle.
>
> *Motor Cycles Ridden Solo:* (*a*) Lamp at the front showing a white light in the direction in which the machine is travelling. (*b*) Lamp at the rear displaying a red light in the reverse direction to that in which the machine is travelling. (*c*) Front number plate, if with duplicate faces, may be illuminated instead of rear plate.

There are now no restrictions as to size or power of lamps, and obscuration by tissue paper or paint is therefore unnecessary. At the same time, the Automobile Association hopes that all motorists will restrict their lighting to a power reasonably necessary for their own safety and that of other road users.

A DISCLAIMER.

DR. C. H. PRING (Ivor House, Trafalgar Road, Camberwell) writes: Will you allow me to say that I am in no way related to the Dr. Pring whose name has recently appeared in connexion with certain proceedings in the Divorce Court?

CORRECTIONS.

IN the note on Naval Hygiene in our last issue there was an obvious misprint on p. 608, seven lines from the end of the paragraph: "In a lanoline *case*" should have been "in a lanoline *base*."

IN the note on Anaesthesia in Tonsil and Adenoid Operations by Dr. H. L. Hamilton (JOURNAL, November 8th, p. 620) it was inadvertently stated that 1 minim of ethyl chloride for each year of the child's age is sprayed on the absorbent wad placed in the inhaler. For 1 minim read 1 c.cm.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 48, 49, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 45, 46, and 47.

VACANCIES are announced for medical referees under the Workmen's Compensation Act, 1906, for Barrow-in-Furness and Ulverston, Ambleside, Kendal, Kirkby Lonsdale, and Settle County Courts in Circuit No. 3, and for Ashbourne, Bakewell and Ilkeston, Derby and Long Eaton, Wirksworth and Matlock, and Burton-on-Trent County Courts in Circuit No. 19. Applications to the Private Secretary, Home Office, by November 29th and December 3rd respectively.

THE following vacant appointments of certifying factory surgeons are announced: Downton (Wilts), Kingston-on-Thames (Surrey), Otley (Yorks, West Riding), Porthcawl (Glamorgan), Saintfield (Down).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.